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HOME AND SOCIAL PHILOSOPHY.

First Series.

HOME AND SOCIAL PHILOSOPHY:

OR,

Chapters on Every-day Topics.

FROM "HOUSEHOLD WORDS," EDITED BY CHARLES DICKENS.

FIRST SERIES.

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PREFACE.

THIS volume is the first of a classified reprint of Dickens's "Household Words." Under the title of "*Home and Social Philosophy*" it is proposed thus to preserve, in a portable and permanent shape, all those valuable, pithy and entertaining essays which relate to domestic and social economy, familiar illustrations of natural philosophy, and kindred topics. "*The World Here and There*" will be the title of the series of travellers' narratives and geographical notes. "*Home Narratives*," including the best of the stories and imaginative sketches, will form the third series. It is thus intended to make a complete reprint of Dickens's admirable work from the commencement, and to continue the series, omitting the articles which are of temporary or local interest.

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HOME AND SOCIAL PHILOSOPHY.

Dreams.

WHEN we picture to ourselves a person lying in a state of profound sleep—the body slightly curved upon itself; the limbs relaxed; the head reclining upon its pillow; and eyelids closed; it is wonderful to think what strange and startling imagery may be passing through the brain of that apparently unconscious being. The events of his whole life may hurry past him in dim obscurity; he may be revisited by the dead; he may be transported into regions he never before beheld; and his ideas, visibly assuming phantasmal shapes, may hover round him like shadows reflected from another and more spiritual state of existence.

Let us draw the curtains gently aside, and study the physiognomy of sleep.

The countenance may, occasionally, be observed lighted up, as it were, from within by a passing dream—its expression is frequently one of peculiar mildness and benignity;

the breathing may be slow, but it is calm and uniform; the pulse not so rapid as in the waking state, but soft and regular; the composure of the whole body may continue trance-like and perfect. There is, indeed, no sign of innocence more touching than the smile of a sleeping infant. But, suddenly, this state of tranquillity may be disturbed; the dreamer changes his position and becomes restless; he moans grievously—perhaps sobs—and tears may be observed glimmering underneath his eyelids; his whole body now seems to be shaken by some inward convulsion; but, presently, the strife abates; the storm-cloud gradually passes; he stretches his limbs, opens his eyes, and, as he awakes, daylight, in an instant, dispels the vision, perhaps leaving not behind the faintest trace or recollection of a single incident which occurred in this mysterious state.

But what are dreams? Whence come they? What do they portend? Not man only, but all animals, it is presumed, dream, more or less, when they are asleep. Horses neigh, and sometimes kick violently; cows, when suckling their young calves, often utter piteous lowings; dogs bark in suppressed tones, and, from the motions of their paws, appear to fancy themselves in the field of the chase; even frogs, particularly during summer, croak loudly and discordantly until midnight, and then retire, and become silent. Birds also dream; and will sometimes, when frightened, fall from their roosting perch, or flutter about their cage, in evident alarm. A bullfinch, says Bechstein, belonging to a lady, was subject to very frightful dreams, which made it drop off its perch; but no sooner did it hear the voice of its affectionate mistress than it became immediately tranquil and reascended its perch to sleep again. It is pretty certain that parrots dream. It is, indeed, a curious circumstance that the best way of

teaching this bird to talk is to cover the cage over so as to darken it, and while he is going to sleep pronounce, audibly and slowly, the word he is to learn; if the winged pupil be a clever one, he will, upon the repetition of the lesson, in a morning or two, begin to repeat it.

Upon the same principle, school-boys commit their tasks to memory by reading them over the last thing before they go to bed. It is to be remembered that during sleep the mind may not be wholly under eclipse; for, although some of its faculties—such as perception, comparison, judgment, and especially the will, may be suspended—others (for example, Memory and Imagination) are often more active than in the waking state. But some persons, it is said, never dream. We are assured by Locke that he knew a gentleman who had an excellent memory, yet could not recollect ever having dreamed until his twenty-sixth year. Dr. Reid, for many years before his death, had no recollection of having ever dreamed. Dr. Elliotson also relates, apparently upon good authority, the case of a man who never dreamed until after he had a fever, in his fortieth year, and we ourselves know several persons who are not conscious of ever dreaming. Nevertheless, many contend that in all such cases dreams really occur, but that they escape the recollection; for they contend that it is impossible that the mind can, being an independent principle, ever be in a state of absolute rest. This is arguing within a very narrow circle. We must not forget that the intimate alliance of the mind with the body, subjects it to its general laws; the "heat-oppressed brain" requires rest to renew its energies, and the mind, of which it is the organ, in the mean time, may, as in profound sleep, remain perfectly quiescent. The lids of the outward senses are closed; a veil is drawn over the immaterial principle of our nature;

and mind and body alike, for a period, lie in a state of utter unconsciousness.

Here, however, it may fairly be asked, how happens it that the same persons will at one time remember, and at another, forget his dreams? This circumstance may, we conceive, thus be explained:—

Those dreams which occur in very deep sleep, and in the early part of the night, are not so likely to be remembered as those which happen towards morning, when the sleep is less profound; hence the popular notion that our morning dreams—which are always best remembered—are likely to prove true. Then, again, the imagery of some dreams is more striking, and actually makes a deeper impression than the incidents of other dreams. We are told by Sir Humphrey Davy, that on one occasion, a dream was so strongly impressed upon his eye, that even after he had risen and walked out, he could not be persuaded of its unreal nature, until his friends convinced him of its impossibility. The effect of some dreams upon children is very remarkable; they are, it is believed, more liable to dreams of terror than grown persons, which may be accounted for by their being more subject to a variety of internal complaints, such as teething, convulsions, derangement of the bowels, &c.; added to which, their reasoning faculties are not as yet sufficiently developed to correct such erroneous impressions. Hence, sometimes, children appear, when they awake, bewildered and distressed, and remain for a considerable period in a state of agitation almost resembling delirium. The incidents which are conceived in dreams are indeed not unfrequently confounded by adults with real events; hence, we often hear people, in alluding to some doubtful circumstance, exclaim, "Well! if it be not true, I certainly must have dreamed it." We confess we have

ourselves been puzzled in this way; the spell may be broken; but the impression made by the delusion still clings to us; its shadow is still thrown across our path.

The question therefore recurs, what are Dreams? Whence do they arise? We believe that the ideas and emotions which take place in the dreaming state may be ascribed to a twofold origin. They may arise from certain bodily sensations, which may suggest particular trains of thought and feeling; or they may be derived from the operations or activity of the thinking principle itself; in which case they are purely mental. The celebrated Dr. James Gregory—whose premature death was a great loss to science—states, that having gone to bed with a vessel of hot water at his feet, he dreamt of walking up the crater of Mount Etna, and felt the ground warm under him. He likewise, on another occasion, dreamt of spending a winter at Hudson's Bay, and of suffering much distress from intense frost; and found, when he awoke, that he had thrown off the bedclothes in his sleep, and exposed himself to cold. He had been reading, a few days before, a very particular account of this colony. The eminent metaphysician, Dr. Reid, relates of himself that the dressing of a blister, which he had applied to his head, becoming ruffled, so as to produce pain, he dreamt that he had fallen into the hands of a party of North American Indians, who were scalping him. These were dreams suggested by sensations which were conveyed from the surface of the body, through the nerves, until a corresponding impression was produced on the mind. Upon the same principle, very strong impressions received during the day may modify and very materially influence the character of our dreams at night. Dr. Beattie states that once, after riding thirty miles in a very high wind, he passed a night of dreams which were so terrible, that he

found it expedient to keep himself awake, that he might no longer be tormented with them. "Had I been superstitious," he observes, "I should have thought that some disaster was impending; but it occurred to me that the tempestuous weather I had encountered the preceding day might be the cause of all these horrors." Other and less obvious causes are in constant operation. A change in the weather—in the electrical state of the atmosphere—and its barometrical pressure—the temperature of the bed-room—arrangements of the bed-furniture—the adjustment of the bed-clothes—nay, the position of the sleeper, particularly if he cramp a foot, or benumb an arm, will at once affect the entire concatenation and issue of his dreams.

Furthermore. Impressions may be made on the mind during sleep, by speaking gently to a person, or even whispering in the ear. We ourselves, when in Italy, could on one occasion trace the origin of a very remarkable dream to our having heard, in an obscure and half-conscious manner, during sleep, the noise of people in the streets, on All Souls'-night, invoking alms for the dead. Dr. Beattie knew a man in whom any kind of dream could be produced if his friends, gently addressing him, afforded the subject matter for his ideas. Equally curious is the circumstance that dreams may be produced by whispering in the ear. A case of this description is recorded by Dr. Abercrombie:

"An officer, whose susceptibility of having his dreams thus conjured before him, was so remarkable, that his friends could produce any kind of dream they pleased, by softly whispering in his ear, especially if this were done by one with whose voice he was familiar. His companions were in the constant habit of amusing themselves at his expense. On one occasion they conducted him through the whole progress of a quarrel, which ended in a duel; and

when the parties were supposed to meet, a pistol was put into his hand, which he fired off in his sleep, and was awakened by the report. On another, they found him asleep on the top of a locker or bunker in the cabin, when, by whispering, they made him believe he had fallen overboard; and they then exhorted him to save himself by swimming. He immediately imitated the motions of swimming. They then suggested to him that he was being pursued by a shark, and entreated him to dive for his life. This he did, or rather attempted, with so much violence, that he threw himself off the locker, by which he was bruised, and, of course, awakened." Dr. Abercrombie adds that the most remarkable circumstance connected with this case was, that after these and a variety of other pranks had been played upon him, "he had no distinct recollection of his dreams, but only a confused feeling of oppression or fatigue, and used to tell his friends that he was sure they had been playing some tricks upon him."

It appears also—and the fact is very remarkable—that a similar kind of sensation will produce the same description of dream in a number of individuals at the same time. Hence different people will sometimes have the same dream. We read of a whole regiment starting up in alarm, declaring they were dreaming that a black dog had jumped upon their breasts and disappeared, which curious circumstance was explained by the discovery, that they had all been exposed to the influence of a deleterious gas, which was generated in the monastery. The effect of music, also, in exciting delightful dreams, has often been attested. A French philosopher whose experiments are reported by Magendie, according to the airs which he had arranged should be played while he was asleep, could have the character of his dreams directed at pleasure. ".There is an

art," says Sir Thomas Browne—in his usual quaint style—"to make dreams as well as their interpretations; and physicians will tell us that some food makes turbulent, some gives quiet dreams. Cato, who doted upon cabbage, might find the crude effects thereof; and Pythagoras might have had calmer sleeps if he had totally abstained from beans."

The influence of the day's occurrences, and the thoughts which have occupied the mind during the day, have been said to give a corresponding tone and coloring to our dreams at night. Thus the lover dreams of his mistress; the miser of his gold; the merchant of his speculations; the man of science of his discoveries. The poets of all ages and nations adopt this view. Virgil describes Dido forsaken by Æneas, wandering alone on a desert shore in pursuit of the Tyrians. Milton represents Eve relating to Adam the dreams which were very naturally the repetition of her waking thoughts. Petrarch invokes the beauty of Laura. Eloisa, separated from Abelard, is again happy in his company, even amidst "dreary wastes" and low-browed rocks."

There can be no doubt that the dreams of many persons are very greatly influenced by the reflections and emotions they have experienced the preceding day; but this is by no means invariably the case. We have known persons whose dreams refer habitually to events which occurred to them, perhaps, twenty years ago, and upon whom recent events seem to possess no such influence. We have often been told by ladies happily and affectionately married, that while they were engaged, although their thoughts were naturally much set on their engagement, they never dreamt of their lovers. So, also, the father of a family, habitually impressed with a sense of his responsibility and affection

towards his offspring, will sometimes dream often enough of his neighbor's children, but seldom, or perhaps, never, of his own. Try to dream on a given subject—resolve and fix the attention upon it—going to sleep, and no sooner are our eyelids closed, than fantastic fancy will conjure up the most opposite and incongruous imagery. We have heard this dream-problem explained by referring it to a principle of *antagonism*, which, waking or sleeping, may be observed in the animal economy. If a limb become fatigued by remaining too long in one position, it will be relieved by being thrown into the very opposite condition; if the eye fatigue itself by gazing intently on the disc of any bright color, and the eyelids close, the very opposite or antagonistic color will be depicted upon the retina: in like manner, when our waking thoughts—in connection with the nerve matter, which is their material instrument—have exhausted their energy, we can easily conceive how the very opposite condition will be produced. Hence the most unconnected and preposterous train of imagery may arise from the very earnestness with which we desire a contrary effect. We dream of events which do not concern us, instead of those in which we are most deeply interested; we dream of persons to whom we are indifferent, instead of those to whom we are attached. But in the midst of all this curious and perplexing contrariety, it is remarkable—and may be esteemed a proof of the immateriality of the mind—that we always preserve the consciousness of our own identity. No man dreams that he is woman, or any other person than himself;—we have heard of persons who have dreamt they were dead, and in a spiritual state; but the spirit was still their own—they maintained their identity. Sir Thomas Lawrence once made an interesting observation on this subject to Mrs. Butler—then Miss Fanny Kemble: he pointed

out, in conversation, that he never heard of any lady who ever dreamed that she was younger than she really was. We retain in our dreams even the identity of our age. It has been said—we think by Sir Thomas Browne—that some persons of virtuous and honorable principles will commit, as they fancy, actions in their dreams which they would shudder at in their waking moments; but we cannot believe that the identity of moral goodness can be so perverted in the dreaming state. We can, however, readily conceive that, when the mind is oppressed, or disturbed by the recollection of some event it dreads to dwell upon, it may be disturbed by the most terrific and ghastly images. A guilty conscience, too, will unquestionably produce restlessness, agitation, and awe-inspiring dreams. Hence Manfred, in pacing restlessly his lonely Gothic gallery at midnight, pictures to himself the terrors of Sleep:—

> "The lamp must be replenished; even then
> It will not burn so long as I must watch.
> My slumbers, if I slumber, are not sleep,
> *But a continuance of enduring thought,*
> *Which then I can resist not. In my heart*
> *There is a vigil; and these eyes*
> *But close to look within.*"

Contrition and remorse oppose his rest. If we remember right, it was Bishop Newton, who remarked that the sleep of innocence differed essentially from the sleep of guilt.

The assistance supposed to be sometimes furnished in sleep towards the solution of problems which puzzled the waking sense, opens up a curious subject of investigation. Cases of the kind have been recorded upon undoubted authority. Hence some philosophers, like Sir Thomas Browne

and Addison, have been induced to suppose that the soul in this state is partially disengaged from the encumbrance of the body, and therefore more intelligent, which is a mere fancy—a poetical fiction. Surely it is absurd to suppose that the soul, which we invest with such high and perfect attributes, should commit such frivolous and irrational acts as those which take place so constantly in our dreams. "Methinks," observed Locke, "every drowsy nod shakes this doctrine." All we remark, is, that some of the ordinary mental faculties act in such cases with increased energy. But beyond this we cannot go. We are informed by Cabains, that Franklin on several occasions mentioned to him that he had been assisted in his dreams on the issue of many affairs in which he was engaged. So, also, Condillac, while writing his "Cours d'Etudes," states that he was frequently obliged to leave a chapter incomplete, and retire to bed: and that on waking, he found it, on more than one occasion, finished in his head. Condorcet upon leaving his deep and complicated calculations unfinished, after having retired to rest, often found their results unfolded to him in his dreams. Voltaire assures us that he, like La Fontaine, composed verses frequently in his sleep, which he remembered on awaking. Doctor Johnson states that he once in a dream had a contest of wit with some other person, and that he was very much mortified by imagining that his opponent had the better of him. Coleridge, in a dream, composed the wild and beautiful poem of "Kubla Khan," which was suggested to him by a passage he was reading in "Purchas's Pilgrimage" when he fell asleep. On awaking he had a distinct recollection of the whole, and taking his pen, ink, and paper, instantly and eagerly wrote down the lines which have been so much admired.

One of the most striking circumstances connected with

the human mind is the extreme lightning-like rapidity of its thoughts, even in our waking hours; but the transactions which appear to take place in our dreams are accomplished with still more incalculable rapidity; the relations of space, the duration of time, appear to be alike annihilated; we are transported in an instant to the most distant regions of the earth, and the events of ages are condensed into the span of a few seconds. The accidental jarring of a door, or any noise, will, at the same moment it awakens a person, suggest the incidents of an entire dream. Hence some persons—Lord Brougham in particular—have supposed that all our dreams take place in the transition or interval between sleep and waking. A gentleman dreamt that he had enlisted as a soldier, joined his regiment, deserted, was apprehended, carried back, tried, condemned to be shot, and, at last, led out for execution. After all the usual preparations a gun was fired; he awoke with the report, and found that a noise in the adjoining room had, in the same moment, produced the dream and awakened him. The same want of any notion of the duration of time occurs, more or less, in all dreams; hence our ignorance when we awake of the length of the night. A friend of Dr. Abercrombie's dreamt that he crossed the Atlantic and spent a fortnight in America. In embarking, on his return, he fell into the sea, and, awaking with the fright, discovered he had not been ten minutes asleep. "I lately dreamed," says Dr. Macnish, "that I made a voyage—remained some days in Calcutta—returned home—then took ship for Egypt, where I visited the cataracts of the Nile, Grand Cairo, and the Pyramids; and, to crown the whole, had the honor of an interview with Mahomet Ali, Cleopatra, and Alexander the Great." All this was the work of a single hour, or even a few minutes. In one of the dreams which Mr. De

Quincey describes—when under the influence of opium—"the sense of Space, and in the end of Time were," he states, "both powerfully affected. Buildings, landscapes, &c., were exhibited in proportions so vast as the bodily eye is not fitted to receive. Space swelled, and was amplified to a sense of unutterable infinity. This, however, did not disturb me so much as the vast expansion of Time; I sometimes seemed to have lived for seventy or one hundred years in one night; nay, sometimes had feelings representative of a millennium, passed in that time; or, however, of a duration far beyond the limits of any human experience." One of the miracles of Mahomet appears to be illustrative of the same phenomenon. We read, in the Koran, that the angel Gabriel took Mahomet, one morning, out of his bed to give him a sight of all things in the Seven Heavens and in Paradise; and, after holding ninety thousand spiritual conferences, he was brought back again to his bed; all which was transacted in so small a space of time that Mahomet, upon his return, found his bed still warm.

Are dreams so much varied as is generally supposed? Or, taking into consideration our different mental and physical constitutions, is there not rather a remarkable sameness in them? It is certainly a very unusual circumstance to hear of any dream that does violence to the common experience of mankind. One class of dreams, which may be termed RETROSPECTIVE, is of frequent occurrence. These are characterized by the revival of associations long since forgotten. The faculty of Memory appears to be preternaturally exalted; the veil is withdrawn which obscured the vista of our past life; and the minutest events of childhood pass in vivid review before us. There can be no doubt that something analogous to this occurs in drowning; when after the alarm and struggle for life has subsided, sensations and

visions supervene with indescribable rapidity. The same very remarkable phenomenon takes place also sometimes in hanging; but is by no means uniformly produced. "Of all whom I have seen restored from drowning," observes Dr. Lettsom, "I never found one who had the smallest recollection of any thing that passed under water until the time they were restored." Persons must not, therefore, be deceived by imagining that an Elysium is to be found at the bottom of a garden well, or a canal, or a river.

But to return;—it is not only the very early incidents of childhood which may thus be recalled by our dreams, but recent events, which in our waking hours had escaped the memory, are sometimes suddenly recalled. In his "Notes to Waverley," Sir Walter Scott relates the following anecdote;—"A gentleman connected with a bank in Glasgow, while employed in the occupation of cashier, was annoyed by a person, out of his turn, demanding the payment of a check for six pounds. Having paid him, but with reluctance, out of his turn, he thought no more of the transaction. At the end of the year, which was eight or nine months after, a difficulty was experienced in making the books balance, in consequence of the deficiency of six pounds. Several days and nights were exhausted in endeavors to discover the source of the error, but without success; and the discomfited and chagrined cashier retired one night to his bed, disappointed and fatigued. He fell asleep and dreamed he was at his Bank, and once again the whole scene of the annoying man and his six pound check arose before him; and, on examination, it was discovered that the sum paid to this person had been neglected to be inserted in the book of interests, and that it exactly accounted for the error in the balance." We read of another gentleman, a solicitor, who, on one occasion, lost a very important

document connected with the conveyance of some property; the most anxious search was made for it in vain; and the night preceding the day on which the parties were to meet for the final settlement the son of this gentleman then went to bed, under much anxiety and disappointment, and dreamt that, at the time when the missing paper was delivered to his father, his table was covered with papers connected with the affairs of a particular client; and there found the paper they had been in search of, which had been tied up in a parcel to which it was in no way related.

There is another class of dreams which would appear to be much more extraordinary than these—of a RETROSPECTIVE CHARACTER, viz: those in which the dreamer appears to take cognizance of incidents which are occurring at a distance, which may be designated Dreams of COINCIDENCE. In the "Memoirs of Margaret de Valois" we read, that her mother, Catherine de Medicis, when ill of the plague at Metz, saw her son, the Duc d'Anjou, at the victory of Jarnac thrown from his horse, and the Prince de Condè dead —events which happened exactly at that moment. Dr. Macnish relates, as the most striking example he ever met with of the coexistence between a dream and a passing event, the following melancholy story:—Miss M., a young lady, a native of Ross-shire, was deeply in love with an officer who accompanied Sir John Moore in the Peninsular War. The constant danger to which he was exposed had an evident effect upon her spirits. She became pale and melancholy in perpetually brooding over his fortunes; and, in spite of all that reason could do, felt a certain conviction that, when she last parted from her lover, she had parted with him for ever. In a surprisingly short period her graceful form declined into all the appalling characteristics of a fatal illness, and she seemed rapidly hastening to the

grave, when a dream confirmed the horrors she had long anticipated and gave the finishing stroke to her sorrows. One night, after falling asleep she imagined she saw her lover, pale, bloody, and wounded in the breast, enter her apartment. He drew aside the curtains of the bed, and, with a look of the utmost mildness, informed her that he had been slain in battle, desiring her at the same time to comfort herself, and not take his death too seriously to heart. It is needless to say what influence this vision had upon a mind so replete with woe. It withered it entirely, and the poor girl died a few days afterwards, but not without desiring her parents to note down the day of the month on which it happened, and see if it would not be confirmed as she confidently declared it would. Her anticipation was correct, for accounts were shortly afterwards received that the young man was slain at the battle of Corunna, which was fought on the very day of the night of which his betrothed had beheld the vision. It is certainly very natural to suppose that there must be some mysterious connection between such a dream and the event which appears to have simultaneously taken place—but upon reflecting farther upon the subject, we shall find that the coexistence is purely accidental. If, as Sir Walter Scott observed, any event, such as the death of the person dreamt of, chance to take place, so as to correspond with the nature and time of the apparition, the circumstance is conceived to be supernatural, although the coincidence is one which must frequently occur, since our dreams usually refer to the accomplishment of that which haunts our minds when awake, and often presage the most probable events. Such a concatenation, therefore, must often take place when it is considered "of what stuff dreams are made," and how naturally they turn upon those who occupy our mind when awake. When

a soldier is exposed to death in battle; when a sailor is incurring the dangers of the sea; when a beloved wife or relative is attacked by disease, how readily our sleeping imagination rushes to the very point of alarm which, when waking, it had shuddered to anticipate. Considering the many thousands of dreams which must, night after night, pass through the imagination of individuals, the number of coincidences between the vision and the event are fewer and less remarkable than a fair calculation of chance would warrant us to expect.

In addition to these, we sometimes hear of dreams which appear to reveal the secrets of futurity; and which may be designated Prophetic Dreams—unveiling, as they are supposed to do, the destiny which awaits particular individuals. The prophetic dream of Cromwell, that he should live to be the greatest man in England, has often been referred to as an example of special revelation: but surely there can be nothing very wonderful in the occurrence—for, after all, if we could only penetrate into the thoughts, hopes, and designs which inflamed the ambition of such men as Ireton, Lambert, and the like, we should find both their waking and sleeping visions equally suggestive of self-aggrandisement. The Protector himself was not the only usurper, in these troubled times, who dreamed of being "every inch a king;" but we want the data to compute the probabilities which the laws of chance would give in favor of such a prophecy or dream being fulfilled. The prophetic dream refers generally to some event which, in the course of nature, is likely to happen: is it, then, wonderful that it should occur? It would be curious to know how often Napoleon dreamed that he was the emperor of the civilized world, or confined as a prisoner of war; how many thrones he imagined himself to have ascended or

abdicated; how often he accomplished the rebuilding of Jerusalem. A few years ago, some very cruel murders were perpetrated in Edinburgh, by men named Burke and Hare, who sold the bodies of their victims to the Anatomical School. We had ourselves an interview with Burke after his condemnation, when he told us that many months before he was apprehended and convicted, he used to dream that the murders he committed had been discovered; then he imagined himself going to be executed, and his chief anxiety was how he should comport himself on the scaffold before the assembled multitude, whose faces he beheld gazing up and fixed upon him. His dream was, in every respect, verified; but who, for an instant, would suppose there could have been any thing preternatural, or prophetic, in such a vision? For the most part, dreams of this description are supposed to portend the illness, or the time of the death, of particular individuals; and these, too, upon the simple doctrine of chance, turn out, perhaps, to be as often wrong as right. It may be true, that Lord Lyttleton died at the exact hour which he said had been predicted to him in a dream; but Voltaire outlived a similar prophecy for many years. It must, however, be conceded, that persons in ill-health may have their death expedited by believing in such fatal predictions. Tell a timorous man that he will die; and the sentence, if pronounced with sufficient solemnity, and the semblance of its foreknowledge, will, under certain circumstances, execute itself. But on the other hand, the self-sustaining power of the will, with a corresponding concentration of nervous energy, will sometimes triumph over the presence of disease, and for awhile ward off even the hand of death. The anecdote is told of Muley Moloch, who, being informed that his army was likely to be defeated, sprang from his sick bed in great excite-

ment, led his men on to victory, and, on returning to his tent, lay down and almost instantly expired.

But again it may be asked—what then do dreams portend? Do they admit of any rational interpretation? This branch of the art of divination, which was called formerly by the name of "Oneiromancy," has been practised in all ages; and there is, perhaps, not a village in Great Britain, or on the great continent of Europe, India, or America, in which some fortune-telling old woman will not be found who professes to be an oracle in propounding their mystical signification. The magicians of old were supposed to be skilful interpreters of dreams, which, like the wiseacres of Christendom, they viewed under very contradictory aspects.

From one of the most ancient Arabic manuscripts on the subject we learn that if you see an angel, it is a good sign; but if you dream that you converse with one, it forebodes evil—to dream you bathe in a clear fountain denotes joy—but if it be muddy, an enemy will bring against you some false accusation. To dream of carrying any weight upon the back denotes servitude, if you are rich—honor if you are poor. There is not an object in nature—not an event that can occur in life—that our modern fortune-tellers have not converted, when seen in a dream, into some sign ominous of good or evil; and many even well-educated persons are in the habit of fostering their credulity by attaching an undue importance to their dreams. It is a curious circumstance, however, which militates against this mystic art, that the same sign in different countries carries with it a very contrary signification. The peasant girl in England thinks, if she dream of a rose, that it is a sure sign of happiness; but the *paysanne* in Normandy believes that it portends vexation and disappointment. The Englishman conceives that to dream of an oak tree is a sign of

prosperity: but in Switzerland, the same vision is thought to be a forewarning of some dreadful calamity.

The domestic superstitions which are connected with dreams, are sometimes favored by, and perhaps dependent upon, a certain morbid condition or irritability of the nervous system, which suggests the dread of some impending calamity, a painful and indefinite sense of apprehension for which no ostensible reason can be assigned. Strange as it might appear, the influence of our dreams upon our waking state is very remarkable; we may awaken refreshed from a dream which has made us, in our sleep, superlatively happy; or we may rise with melancholic feelings after suffering intense affliction in some dream, and the details of both dreams may alike be forgotten. We cannot, after being so much disturbed, at once regain our composure; the billows continue heaving after the tempest has subsided; the troubled nerves continue to vibrate after the causes that disturbed them have ceased to act; the impression still remains, and checkers the happiness of the future day. Even men of strong mind, who do not believe in the interpretation of dreams, may be so affected. When Henry the Fourth of France was once told by an astrologer that he would be assassinated, he smiled at the prediction, and did not believe it; but he confessed that it often haunted him afterwards, and although he placed no faith in it, still it sometimes depressed his spirits, and he often expressed a wish that he had never heard it. In like manner, dreams, which persons do not believe in, will unconsciously affect the tenor of their thoughts and feelings.

There are many persons who appear to have habitually the most extraordinary dreams, and there is scarcely a family circle that assemble round the domestic hearth, in which some one or other of the party is not able to relate

some very wonderful story. We have ourselves, a *répertoire*, from which we could select a host of such narratives: but we have preferred, at the risk of being thought recapitulative, to dwell upon those which have been recorded upon unimpeachable authority. The dreams which men like Locke, Reid, Gregory, Abercrombie, Macnish, &c., have attested, come with a weight of evidence before us which the dreams of persons unknown in the scientific or literary world would not possess. The impressions produced by dreams are so fugitive—so easy is it for persons unintentionally to deceive themselves in recalling their dreams' experience—that Epictetus, long ago, advised young men not to entertain any company by relating their dreams, as they could only, he affirmed, be interesting to themselves, and perhaps would, after all their pains, be disbelieved by their auditors. Nevertheless, it would be well for all persons to study, whether waking or dreaming, the phenomena of their own minds. The ingenious naturalist, Dr. Fleming, suggests that persons should, in contradistinction to a "Diary," keep a "Nocturnal," in which they should register their dreams. Doubtless such a journal might turn out to be a very amusing Psychological record.

Ice.

WERE I a Frenchman, I would barricade myself against the sky, and object to the sun's government. This is hot republicanism, I admit; but what kind of loyalty to the Majesty of Light can be expected in the month of August from a man whose weight is fourteen stone? The illuminations got up daily by that extremely powerful luminary, regardless of expense, are rapidly accomplishing my ruin. My "condition" is oozing away under the strokes of the sun's rays, and my fortune is shrinking under the pressure of confectioners' bills. The number of sixpenny and shilling ices required per diem to keep down my own particular and personal temperature, would ice the punch to an alderman's turtle for a whole week. I really cannot afford it. I must organize a cheap revolution. The oppressive rule of the Solar Government must be opposed—hotly I dare not say—but zealously and cheaply, with an icy enthusiasm that ranges several degrees below zero, and at a price that shall be within the means of its humblest subjects. I want to be cool. We all want to be cool. Let us set about being cool systematically, economically. Let us start fair;—from freezing point. We will begin with a course of cold reading, and get up the subject geographi-

cally:—how they manage at the Arctics, in Russia, in the East, and at Cape Horn; how wiser people than ourselves, in hotter places, put on armor of ice against the blazing enemy.

Solomon appreciated ice in summer. "As the cold of snow in the time of harvest," he says, "so is a faithful messenger to those who send him; for he refreshes the soul of his masters." My soul wants something colder than a proverb; and I am more refreshed by reading what the Romans did in the ice way. They understood the luxury of ice and snow in summer. They preserved them in pits, and hawked them about their streets. Even now, a little above Rocca di Pappa (on the ancient Mons Albanus) is a plain, called Hannibal's camp, from which snow is collected annually for the use of Rome. On this *dry* plain they dig pits, about fifty feet deep, and twenty-five broad at top, in the form of a sugar-loaf or cone. The larger the pit, no doubt the snow will preserve the better. About three feet from the bottom, they commonly fix a wooden grate, which serves for a drain, should any of the snow happen to melt, which otherwise would stagnate, and hasten the dissolution of the rest. The pit thus formed, and lined with straw and prunings of trees, is filled with snow, which is beaten down as hard as possible, till it becomes a solid body. It is afterwards covered with more prunings of trees, and a roof is raised in form of a low cone, well thatched over with straw. A door is left at the side, covered likewise with straw, by which men enter and cut out the ice (for such it becomes) with a mattock. The quantity daily demanded is carried to Rome in the night-time, in carts well covered with straw. It is found by experience that snow, thus pressed down, is not only colder, but preserves longer, than cakes of ice taken from ponds and ditches. This is instructive

and consoling. I shall show you, by-and-by, what effectual weapons snow and straw are against the arch foe.—For the South of Italy and Sicily, snow is preserved in several caverns of Ætna, and brought down to purchasers, who compete for respite with the eagerness of roasting men.—In Lima, cheap ice, from the Cordilleras, is a cry kindred to our own cheap bread. The public mind makes about six revolutions a year in any state of South America, but in all tumults the ice-mules bear a sacred burden. Nobody dares meddle with the people's ice.—The Chinese understand the use of ice very well indeed.—As for Wenham Lake, folks at Boston talk about the state of the ice crops, as we talk about the state of wheat.—In European capitals, ice is not only an article of amusement, but of trade. Who has not heard of the delights of the sleigh, galloping over ice and snow at twenty miles an hour? Then there is the Russian version of the ice palace on the Neva, built at the marriage of Prince Gallitzin, with ice masonry that blunted all the chisels, ice chairs, ice dining-tables, and ice cannons that fired hempen bullets. But I am sitting upon horsehair, writing upon leather; and I am not consoled. Here, however, I turn to a glowing Kohl, and find relief in a delicious extract from his book on "Russia." You may take off your neckerchief and sit at ease, for here you have a bit of Kohl thoroughly cold:

"An immense quantity of ice is consumed in Russian housekeeping. Throughout the summer, ices are sold in the streets of every Russian town; and, not only iced water, iced wine, and iced beer, but even iced tea is drunk in immense quantities. The short but excessively hot summer would spoil most of the food brought to market, had not the winter provided in abundance the means for guarding against such rapid decomposition. An ice-house, is, there-

fore, looked upon as an indispensable appendage, not merely to the establishments of the wealthy, but even to the huts of the peasants. In St. Petersburg alone there are said to be *ten thousand ice-houses*, and it may easily be supposed, that to fill all these cellars is a task of no trifling magnitude. It is not too much to calculate that each ice-house on an average, requires fifty sledge-loads of ice to fill it. The fishmongers, butchers, and dealers in quass have such enormous cellars that many hundreds of loads will go into them; and the breweries, distilleries, &c., consume incalculable quantities. According to the above calculation, five hundred thousand sledge-loads of ice would have to be drawn out of the Neva every year; but this calculation is rather under than over the mark. It is, certainly, the merchandise in which the most extensive traffic is carried on during winter. Whole processions of sledges laden with the glittering crystals may then be seen ascending from the Neva; and thousands of men are incessantly at work raising the cooling produce from its parent river. The breaking of the ice is carried on in this way: The workmen begin by clearing the snow away from the surface, that they may clearly trace out the form of the blocks to be detached. They then measure off a large parallelogram, and mark the outline with a hatchet. The parallelogram is subdivided into a number of squares, of a size to suit the capacity of their sledges. When the drawing is complete, the more serious part of the work begins. A regular trench has to be formed round the parallelogram in question. This is done with hatchets; and, as the ice is frequently four or five feet thick, the trenches become at last so deep that the workmen are as completely lost to the eye as if they had been laboring in a mine. Of course, a sufficient thickness of ice must be left in the trenches to bear the workmen,

which is afterwards broken with bars of iron. When the parallelogram has thus been loosened, the subdivision is effected with comparative ease. A number of men mount the swimming mass, and with their pointed ice-breakers, they all strike at the same moment upon the line that has been marked out. A few volleys of this kind make the ice break just along the desired line; and each of the oblong slips thus obtained is broken up again into square pieces after a similar fashion. To draw the fragments out of the water, a kind of inclined railroad has to be made on the side of the standing ice. This done, iron hooks are fastened into the pieces that are to be landed, and, amid loud cheers, the clear, green, crystalline mass is drawn up by willing hands. As the huge lumps lie on the snow, they appear of an emerald green, and are remarkably compact, without either bubble or rent. As soon as the sledge is loaded, the driver seats himself upon his merchandise, and thus, coolly enthroned (ah, enviable fellow!) glides away to the cellars of his customers, enlivening his frosty occupation with a merry song. It is by no means without interest to visit the ice-shafts of the Neva, and watch the Russian laborers, while engaged in a task so congenial to the habits of their country. In the cellars the ice is piled up with much art and regularity, and all sorts of shelves and niches are made, for the convenience of placing milk, meat, and similar articles there in hot weather. Such a description at least applies to what may be called a tidy, orderly ice-house; but tidiness and order do not always preside over Russian arrangements, and in the majority of cellars the ice is thrown carelessly in and broken into pieces, that it may be packed away into the corners, and that as little space as possible may be left unoccupied. The consistency and durability of the ice do not appear to suffer from this

breaking process; on the contrary, the whole, if well packed, will soon freeze into one compact mass, that is afterwards proof against the warmest summer. The Russians are so accustomed to these ice-houses, that they are at a loss to understand how a family can do without them; and their housewives are in the greatest trouble when they think they have not laid in a sufficient supply of ice during the winter, or when in summer they fancy their stock likely to run short. It may safely be estimated that the ice consumed in St. Petersburg during the summer, costs the inhabitants from two to three millions of roubles." That is to say, three hundred thousand pounds to four hundred and fifty thousand pounds.

Alas! how can I enjoy thinking about the popularity of ice in Russia, when I reflect how it is with us at home? We have abundant use for ice; yet, its use, instead of being general, is exceptional. Except at pretentious dinner-parties, and in confectioners' shops; with a lump or two to be met with now and then as a preservative for fish and meat, we see little of it in England. What I want, is to have it more generally applied to domestic purposes amongst the poor as well as rich. I would be a propagandist from the frigid zones—an ice missionary. I want to show that it is practicable for ice to be a great deal more brought into play than it is.

Let me begin at the beginning—and, first of all, what is ice?

Ice, we all know, is water that beyond a certain point has parted with its heat, and it must get its heat back in some way before it can return into the state of water. Whatever warmer substance comes into its neighborhood, it robs, and so it robs creams of the confectioner, converting them into ice, as it converts, with the stolen warmth, a few drops

of its own substance into water. The freezing point of water is at thirty-two degrees, but it is at thirty-nine degrees that the freezing process has commenced. Down to the temperature of thirty-nine degrees water becomes denser as it cools, in common with the law that regulates all other substances; but, from that point, as it cools, it becomes lighter, and the water, when solidified, is enabled thus to float. This is not caused by air inclosed within the solid substance; for water that has been boiled, from which, therefore, air has been expelled, makes better ice than water with air in it.

It is the peculiar arrangement which the ice crystals take among each other from which ice derives the lightness of its structure. Why it is light, is obvious; for, if it were heavy, and sank to the bed of the water, no summer's sun would penetrate to melt it; year by year it would accumulate, and thus our waters would be rapidly blocked up. Upon the land, when the moisture on the rock or in the soil is frozen, the expansion of its innumerable particles is a mighty power that assists in preparation of the soil for human purposes. Very well; ice forms at thirty-two degrees, then; but it need not stop at that temperature. It remains solid; but in cold latitudes, more and more of that heat may be abstracted from it, until not only all the thirty-two degrees are gone, but a few besides upon the minus scale; until it becomes cold beyond all calculation, for no thermometer can register it. Now, to restore such ice to fluidity, every degree of heat has to be given back. Of Wenham ice, which is trebly cold, a great deal is imported. Importation is, however, an expensive process; and in good truth, there are some things to be said in favor of our own ice, and its quality, which practical men tell us is superior by virtue of the greater toughness and slowness

of the first freezing process; for the more slowly ice freezes, the more slowly it melts. The grand thing, however, in favor of English ice, is that it lies at English doors, and in a favorable winter costs us little but the storage room and trouble of collection. In dairy farms, ice is a necessary article, and ice-houses are constantly connected with them. The construction of an ice-house is sufficiently well known; the general idea corresponding to that of the Roman ice-wells which we just now talked about. "But," exclaims the farmer or dairyman, "I can't afford to build ice-houses." Perhaps not; though it would pay you well if you could; but poverty need not deprive you of ice all the summer; for it may be preserved quite well without ice-houses.

Ice may be stacked—plain English ice, or snow well beaten down into a mass, after the Roman fashion, which answers for all economic purposes every bit as well. This is the mode of stacking ice or snow which has been found to succeed most thoroughly at Chatsworth;—in the first place, let the owner of the dairy-farm select, not the coolest and shadiest spot, as he inevitably would do without better instruction, but the openest and sunniest, because driest, bit of ground he can find—the sunnier the better. At Chatsworth the first trials were made in shady places, and proved far less satisfactory, because a dry place is required, and the dryness which the sun occasions more than compensates for the temperature of its beams. The platform having been judiciously selected, dig all round it a sufficient trench, which is to contain the water that will, more or less, inevitably drain from the completed stack; let the bank of the trench be lower on the outer side, and, if necessary, a siphon tube may be put in to drain off any excess. The object of the trench is, firstly, to prevent any of the drainage water from spreading over the platform; therefore to keep the platform

dry; and secondly, to preserve this drainage water, which is very cold and can be used for making butter. Then lay over the whole platform a bed of straw, six or nine inches thick. Straw is a sufficient and convenient non-conductor, and ice wrapped in straw is tolerably well protected from external influence. Upon the straw bed make your stack, building it with sides perfectly upright. The sides are to be thus perpendicular, in order that whatever melts may flow at once into the trench, and not soak into and spoil the ice which remains otherwise unmelted. If the stack happen to be long, partitions of straw should be inserted at convenient distances, for the protection of one part while another portion is in use. The stack being erected in this manner, coat round the whole out side of it, and thatch it with a straw defence of eighteen inches thick. If you build the stack of snow, build in the same manner, but take care to batten it well down. A stack of ice or snow, so made and so defended, will remain good through the hottest summer, and will obviate necessity for any ice-house. Remember that all this will be done in mid-winter, when your laborers have comparatively nothing to do; when your horses are eating their heads off, and your cart-tires are rusting from idleness.

It is not only to the confectioner and dairy farmer that ice is an important article. The fishmonger, the butcher, and many more who deal in perishable articles, should press it into service. Ice is an effectual antiseptic. How thoroughly it acts as a preservative is illustrated by the oft-told tale of the mammoth, which made its appearance fifty years since, in his body, as he lived perhaps before the birth of Adam. "In the latter part of the summer of 1799, a Tungusian fisherman"—I am now quoting from Professor Ansted's "Ancient World"—"A Tungusian fisherman, who

was in the habit of collecting tusks for sale from among the blocks of ice and rubbish which had fallen from the cliffs, on the banks of Lake Oncoul, near the mouth of the Lena river, saw projecting from the cliff a mass of unusual form; but, from its shapeless appearance, he could make nothing of it. The year after, proceeding to his usual haunt, he noticed that this lump was somewhat disengaged, and had two projecting parts; and, towards the end of the summer of 1801, when he again looked at it, he found it to consist of the whole side of a gigantic animal, having large tusks, one of which projected from the ice. So slowly do changes take place in these districts, that the next summer, being rather cold, no alteration was to be noted; but in 1803 part of the ice between the earth and the monstrous animal was somewhat more melted than before, till the whole at length fell by its own weight on a bank of sand. Next year our fisherman came in the month of March, and cut off the tusks, which he soon sold for about the value of fifty roubles, (about seven pounds, ten shillings)." Two years after this, in 1806, being the seventh year from the discovery of the carcass, these distant and desert regions were traversed by Mr. Adams, an *employé* of the Court of Russia; and his account of the rest of the history of this mammoth, the ancient elephant of northern Europe, is as follows:—"At this time I found the mammoth still in the same place, but altogether mutilated. The prejudices being dissipated, in consequence of the Tungusian (who had fallen sick with alarm on first hearing of the discovery, because it was considered a bad omen,) having recovered his health, there was no obstacle to prevent approach to the carcass. The proprietor was contented with his profit for the tusks; and the Jakutski of the neigborhood had cut off the flesh, with which they fed their dogs. During the scarcity, wild beasts, such as white

bears, wolves, wolverines, and foxes, also fed upon it; and the traces of their footsteps were seen around. The skeleton, almost entirely cleared of its flesh, remained whole, with the exception of one fore-leg. The head was covered with a dry skin; one of the ears, well preserved, was furnished with a tuft of hairs. All these parts have necessarily been injured in transporting them a distance of seven thousand three hundred and thirty miles (to St. Petersburg); but the eyes have been preserved; and the pupil of one can still be distinguished."

I will not quote the desciption of that mammoth, because his whole story has been told so very often; but I fix him here as the best known illustration of the preserving powers of ice. Decomposition requires three conditions,—warmth, air, and moisture. A body surrounded completely by dry ice has none of the three conditions properly fulfilled. That is the philosophy of the matter; but it is too hot to philosophize at present, or to discuss any subject—even that of Ice. One can only glance at it while the thermometer is—I dare not go and ascertain where. At last, having attained a summer luxury (rather an expensive one, by-the-bye, in the long run), to wit, idleness—the *dolce far niente*—surely it would be insanity to add another syllable. Any one who is capable of so much exertion, is at liberty to think a little of these things, and of the mode of stacking Ice especially.

Some Account of Chloroform.

THE globe whereon we live, called habitable, has now pretensions to that epithet which it could not boast of, in former times. Science, continually developing its capabilities, is daily rendering it a more eligible residence for a gentleman—a more commodious dwelling-place, indeed, to all. Say that the path of life is thorny still; yet, what with gutta percha—for soles and other things—steam, electricity, and other helps and appliances, it has become a decidedly more passable thoroughfare than it was. Philosophers, by simply giving their minds to the study of Nature, have obtained results more valuable than the considerations for which, according to the myths of the middle ages, their predecessors were glad to dispose of their souls. The amount of human comfort has been greatly augmented; the sum of human wretchedness has been diminished by a very large figure. Among the reductions of this kind that have been accomplished in modern times, the most signal, unquestionably, is the abolition of physical pain, in so far as it has been effected by the discovery of the anæsthetical property of chloroform; that is, of the remarkable power possessed by that substance when inhaled, of annulling, for

a time of greater or less duration, the sensibility of animal bodies.

Of the numerous ills that flesh is heir to, one, by no means the least grievous, is the contingency of having to part with an unsound limb, or otherwise to undergo the process of being dissected alive, commonly called a surgical operation. It has long been an axiom in chirurgical science, that the operator should endeavor, to the extent of his ability, to perform his vivisection "*tuto, cito, et jucunde*" —safely, speedily and *pleasantly*. Modern advancement in anatomy and physiology, and refinement in dexterity, had enabled surgeons to comply, in a great measure, with the two former requisitions; the latter still remained certainly unfulfilled. The horrors of ancient surgery had been mitigated; but all that skill and knowledge could do or suggest failed, signally, to make things pleasant, in any considerable degree, to the individual under the scalpel. So far agreeable, however, as the prospect of a comfortable doze, with the expectation of awakening relieved of a torment or a burden, can make a surgical operation, it has, at last, been rendered. Everybody is aware that, during the extraordinary slumber induced by the inhalation of chloroform, operations of the first magnitude and the greatest difficulty may be painlessly undergone. Consciousness is suspended, sensation placed in abeyance. Muscles, tendons, bones, even nerves, are cut and sawn through with little or no inconvenience to their proprietor. A man is lopped and pruned like a tree; he is carved and hewn, and squared, as if he were a log; and is, indeed, the mere apathetic subject of medical carpentry.

Whilst the bodily edifice is under surgical repair, for the advantage of being enabled to avoid the annoyance attending the cognizances of that process, by taking, with

ease and convenience, an excursion into the land of sleep, every lifeholder of the tenement in question is indebted to Dr. Simpson of Edinburgh. The peculiar power of chloroform to produce insensibility, was determined by his researches. For some time previously, sulphuric ether, the discovery of Dr. Jackson and Mr. Morton of Boston, in America, had been in use for the same purpose. There were, however, objections to its employment. A larger quantity of it than was consistent with safety, required occasionally to be administered to produce the desired effect. Its odor was disagreeably strong and permanent; and what was worse, it not unfrequently excited irritation in the chest. In search, therefore, of a more safe and commodious anæsthetic agent, Dr. Simpson tried a series of experiments, principally on his own person, with a variety of volatile substances; and the result was, his announcement, in 1847, of the desideratum as being supplied by chloroform.

The existence of this substance, chloroform, had been known to chemists since 1831, in which year it was discovered by Soubeiran. Very little later, in 1832, an independent discovery of it was made by Liebig. Dumas, in 1835, was the first to ascertain its exact chemical composition.

When, in our nursery days, we used to read of some wonderful balsam, by means whereof well-disposed magicians and benevolent fairies were wont to charm away the pain of injuries inflicted by dragons and ogres on the persons of good knights and serviceable giant-killers, a very natural desire arose in our minds for information concerning the nature and composition of the marvellous remedy. Those who are not conversant with chemical details, and who may, in spite of hope to the contrary, one day have a tooth to be extracted, or a nail to be plucked out—not to

suggest more formidable interference of a manual or anatomical description with the living mechanism—will probably feel a similar, and at least an equal curiosity, with regard to the rather more practically interesting subject of chloroform.

Chloroform is a bright colorless liquid in appearance resembling spirit of wine, which it further resembles in being extremely volatile, but differs from it remarkably in being much more dense; for it is considerably heavier than water, in which it sinks. Unlike spirit of wine, too, it is not inflammable. It has an agreeable, fragrant, ethereal, fruit-like smell, very similar to that of a ripe apple; and a sweet taste. Chloroform boils at one hundred and forty-one degrees, and its vapor exceeds in density that of the atmosphere in somewhat above the proportion of four to one. The ready volatility of a fluid comparatively so ponderous as chloroform may appear singular.

Chloroform, considered as a noun substantive, may be said to be an abbreviation—not to employ the more equivocal expression, *alias*. In legal phraseolgy—according to the statutes of chemistry—it is called per-chloride of formyle, signifying formyle united with its *maximum* of chlorine. More strictly still, it is denominated ter-chloride instead of per-chloride, to denote that the proportions in which the chlorine is combined with the formyle are three of the former to one of the latter. Now, formyle is a substance supposed to be the base, or fundamental, or essential constituent part of an acid called formic acid. Formic acid is so termed from having been first discovered in red ants, the Latin for ant being *formica;* it consists of three proportions of oxygen, in combination with one of hydrogen and two of carbon. But if such is the composition of formic acid, what, it will be asked, was meant by the

statement that its base is formyle? This seeming puzzle is solved by the explanation, that formyle is not conceived to be a simple element, but a substance analogous to one, constituted by the two proportionals of carbon and one of hydrogen in the formic acid. Here it must be remembered that a chemical compound differs essentially from a mechanical mixture. Things mixed mechanically are separable particle from particle; sulphur from charcoal; chalk from cheese. In a chemical compound, the least particle that can be got by mechanical subdivision contains the same chemical constituents as the whole mass. The smallest conceivable quantity, for instance, of formyle, consists of carbon and hydrogen. Formyle has never been produced separately, so as to be shown by itself; but chemists, on certain theoretical grounds, conclude that the carbon and the hydrogen of the formic acid exist therein in a state of special combination, as a distinct thing; so that formic acid consists not in a mutual partnership between carbon, oxygen, and hydrogen individually, but of a particular arrangement of carbon and hydrogen on the one hand —making formyle—with respect to oxygen on the other. In like manner, also, chloroform is ultimately resolvable into chlorine, hydrogen, and carbon: the formyle, to which the three parts of chlorine are adjoined, consisting of a peculiar union of two of carbon with one of hydrogen. Formyle is called, technically, a compound radical; that is, a substance resembling an element, but chemically divisible. Further remark on the radical principle of chloroform must be left to the professed chemist—and punster.

It is, however, worthy of observation that, as Dr. Simpson has pointed out, the discovery by Soubeiran, Liebig, and Dumas, of the formation and composition of chloroform, resulted from inquiries and experiments instituted by them,

with the sole object of investigating a point in philosophical chemistry. They had no notion, no surmise, of the wonderful agency of chloroform on the animal system. Had they been asked to what practical purpose they expected their researches would tend, they could only have answered, generally, that every addition to the stock of human knowledge is of some use or other, although we may be unable to conjecture or foresee its precise utility. Such a reply would have seemed great foolishness to those rather numerous sages of every-day life who are continually asking what is the good of this or that scientific investigation, and who would have triumphed gloriously in the fancied superiority of their "common sense," if no definite and categorical answer could have been given to this sagacious demand of theirs, in reference, as they, perhaps, would facetiously have said, to Chlori-and-ter-fomo-what-d'ye-call-it.

There are several methods of obtaining chloroform; the best is that of distilling a mixture of rectified spirit of wine, water, and chloride of calcium. Four pounds of the last-named substance are mingled, in a large retort or still, with twelve pounds of water, and twelve ounces of spirit, and distilled as long as a dense liquid, which sinks in the water that it comes over with, is produced. This is chloroform—in the rough. It is rectified by re-distillation at the temperature of boiling water, freed from moisture by digestion with chloride of calcium, and finally distilled with sulphuric acid. Its purity is indicated by perfect transparency and want of color. The admixture of water would give it a milky appearance; the presence of chlorine, a yellowish tint. As chlorine is a substance most acrid and irritating to the air-tubes, and one of which the inhalation, even in a small quantity, would be fatal, it is, of course, in

the highest degree essential that chloroform should contain no vestige of it, in a free or uncombined state; that is, over and above the three proportionals in union with, and neutralized by, the one proportional of formyle.

The production of chloroform by the process just described, is the result of a somewhat complex decomposition. Suffice it here to state that the carbon, hydrogen, and chlorine, which constitute that substance, exist in the spirit, water, and chloride of calcium, and that the action of heat, in the distillation of the mixture, causes those elements to re-arrange themselves in the shape of the terchloride of formyle.

And now, the chemist having placed chloroform in the surgeon's hands, in what manner does the latter proceed to employ the gift? Chloroform is most conveniently administered on a sponge, placed in a small silver or plated vessel, with flexible edges, made to fit accurately over the nose and mouth, which have been first anointed with a little cold cream. A small quantity—say one or two tea-spoonsfuls—of the liquid is dropped upon the sponge, and the instrument is adapted to the face of the patient, who is directed to breathe gently and quietly into and out of it. If no inhaler is at hand, a hollow sponge, or a handkerchief rolled into a cup-like form, will suffice. In a short time the eyes become suffused, occasionally a slight struggling, not from pain, but from a species of intoxication, ensues; then the muscles become relaxed, the breathing sonorous, and total insensibility and unconsciousness supervene. Loss of consciousness, however, does not invariably accompany cessation of bodily feeling; insensibility to pain being sometimes caused, the patient, nevertheless, remaining aware of what is going on. There are a few cases in which mere excitement is produced, and which must be considered failures.

In the majority of instances, both consciousness, sensibility, and the power of voluntary motion are alike suspended; and in this happy state of oblivion, the subject of an operation may be carved without caring about it more than if he were a leg of mutton; may have a limb removed with no greater inconvenience than he would suffer from having his hair cut. Some persons, under the influence of chloroform, even during the most terrible stages of a capital operation, fall into a state of sleep-waking or somnambulism, imagine themselves on a visit, or a journey, and actually spend in an agreeable dream the time which the surgeon is occupying in their dismemberment. The delight of a sufferer who, after weeks and months of torture, is cast into a quiet slumber, and after having enjoyed a particularly pleasant nap, finds that he has left his misery behind him on the operating table, may be imagined.

Not the least remarkable peculiarity of chloroform is its peculiarity of being applied in obstetric practice; for, most singularly, whilst, when so employed, it fully produces its anæsthetic effect on the system; it does not at all interfere with that peculiar muscular action which is requisite for the performance of the process adverted to. The question of the propriety or impropriety, in a medical sense, of its general administration in obstetric cases, is a professional one, which cannot be discussed here; it may, however, be remarked, that the fact that it has been successfully employed in any cases of the kind, must narrow that question to the consideration of what and how many such may be eligible for recourse to it. Against its use in that department of medical practice, however, objections have been urged with which it certainly is within the province of common sense and common morality to deal. The prevention of the sufferings attendant on parturition, by anæs-

thetic agents, has been denounced as "unscriptural" and "irreligious;" an attempt to contravene the judgment of Providence on the mother of all living. This objection was not started by the prejudice and imbecility of ordinary fanaticism; it was gravely advanced by educated and even by scientific persons; nay, it was actually put forward in the "Edinburgh Medical and Surgical Journal," for July, 1847. Dr. Simpson found himself obliged to write a pamphlet in reply to it; and he certainly most fully exposed its unsoundness and absurdity. For this demonstration, a very moderate amount of argumentation is, however, sufficient. The severity which has inflicted bodily suffering is qualified by the mercy which has granted medicines and remedies, without prescribing any limit to their employment, whether for cure or for alleviation. If it is morally wrong to use chloroform in obstetricy, it is also wrong to give a common anodyne, or composing draught: nay, it is sinful to administer any kind of medicine whatever to any sick person; sickness, alike with all other evils, being presumed to be the penalty of transgression. Compound extract of colocynth is an impiety at this rate, and black draughts are irreligious. But, apart from particulars, what are we to think of the understanding that could conceive the *evasion* of a penalty imposed by *Infinite* Power and Wisdom? The Edinburgh mind, at any rate, is not that which, one would suppose, could have imagined the possibility of frustrating a decree of Omnipotence and Omniscience.

There is, moreover, another description of cases in which the powers of chloroform are available for the purposes of the medical practitioner. The relaxation of the muscles of the limbs which it effects, renders it eminently serviceable in reducing dislocations. A powerful

man, some such a Hercules as one of those sturdy specimens of the Anglo-Saxon race in the employ of Messrs. Barclay and Perkins, meets with an accident which violently dislodges the head of the shoulder-bone or the thigh-bone from its socket. This accident, if not remedied, would deprive him of the means of earning his bread. The bone being out of its place, the business of the surgeon is to pull it in again. But this duty is more easily prescribed than accomplished. All the powerful muscles surrounding the joint, contracting violently, are exerting their whole force to retain the head of the bone in its unnatural position. Under the most favorable circumstances of the case, as treated by old-fashioned surgery, the reduction of the dislocation is effected with the aid of pulleys, by slowly tiring out the opposing muscles, till at last they yield from very fatigue, and allow the bone to return to its place. But this is not always practicable, and it has not unfrequently been judged necessary by surgeons to subdue the muscular action by bleeding, and the administration of remedies, such as tartrate of antimony, which produce an extreme and overwhelming prostration of the vital powers. Downright intoxication, even, has been recommended by some authors for this purpose. By the inhalation of chloroform, the required muscular conditions are readily obtained; the patient sinks into insensibility, declaring that he feels "quite jolly," and the pulleys having been previously adjusted to the limb, the dislocation is reduced without force, difficulty, or pain.

Still more striking must be the service of chloroform in a case wherein the object is a reduction of displaced parts, which, if not practicable by ordinary means, must be effected by an operation,—a step to which any seriously exhaustive measures are very undesirable preliminaries.

Chloroform, moreover, affords most valuable assistance in the performance of operations, perhaps of a difficult and dangerous nature, upon infants, whose acquiescence in the surgeon's proceedings is extremely to be wished for, and not usually to be obtained. To say nothing of the real blessing to mothers, and all humane persons, involved in the prevention of the poor little creature's suffering.

Chloroform has also been administered with advantage in cases of less serious interest, which sometimes occur in hospital practice. A specimen of the disorder in question is that of Mr. Simpcox, related by Shakspeare, in the second act of "Henry the Sixth." In short, the cases alluded to are cases of shamming. A knave desirous of hospital diet and accommodation, and hospital leisure, presents himself with a stiff knee or elbow joint. A little chloroform is administered for the relief of this affliction; and the rogue, having been reduced to a state of insensibility, awakes with his limb precisely in that position in which he protested that he could not place it by any means.

It is also worthy of mention that the benefit of chloroform has been extended to the brute creation. During the unconsciousness it produces, a leopard has had a leg amputated. So remarkably savage a species of beast, indeed, has it charms to soothe, that even bears, under its tranquillizing influence, have been relieved of cataract—couched, if the phrase may be hazarded, in slumber.

But are there no objections to the use of chloroform deserving of serious consideration? There are, indeed, some very grave objections to its use. An advanced stage of pulmonary disease, malformation or disease of the heart, or tendency to apoplexy, would be objections of this nature; and an objection which comprehends them all, would be the employment of this agent by an incompetent person;

that is, by anybody not thoroughly acquainted with medical science. The practical value of these objections may be estimated from the fact, that, out of ten thousand cases of operation in which it was employed at St. Bartholomew's Hospital, not one death took place in consequence of its administration. Were this all we knew, however, the question of its influence on the ultimate result of operations, would have still to be settled; but surgeons do not appear to consider that it acts at all prejudicially in the manner here indicated.

It is alleged that the whole number of recorded "Deaths from Chloroform" does not exceed twenty. In some of these no medical man was present; in others, it was administered without precaution, and in excess; in some, again, death seems to have been owing to other causes. There appears to be no reason for supposing that stupefaction by chloroform would be at all more likely to be followed by fatal results, than casual intoxication, as contradistinguished from habitual drunkenness.

The other objections to the use of chloroform are such as were raised against the circulation of the blood, and vaccination, and, possibly, against rhubarb and senna, at their first discovery. They partly proceed from a lazy dislike to learn any thing; partly from that conservative instinct, which in some minds supplies the place of intelligent circumspection as a safeguard against the dangers of innovation.

The alleged abuse of chloroform for criminal ends has attracted the attention of the Legislature, and a Bill for the Prevention of Offences has been presented to the House of Peers by Lord Campbell, in which rather prominent and discreditable mention is made of that anæsthetic fluid. A well-written pamphlet, by Dr John Snow, will place this subject in a rational light before any one desirous of inves-

tigating it. Here it is sufficient to remark that chloroform, in order to prove effectual, requires a voluntary inhalation of some length; that animals, to be affected by it, must be caused to breathe it by main force; and that, in short, it is no more easy to stupefy any one against his will by means of chloroform, than it is by means of brandy-and-water. There can be little doubt, that the persons who represent themselves to have been robbed under its influence were mistaken as to the cause of their anæsthesia, which was, in all probability, traceable, not to the terchloride of formyle, but to a certain combination of carbon, oxygen, and hydrogen, termed technically hydrate of oxide of ethyle—otherwise alcohol, otherwise ardent spirit, in some one or other of its various forms and combinations. No doubt, a rogue may employ the terchloride of formyle in furtherance of his base designs; but it must be with that concurrence on the part of his victim which the juvenile bird-catcher finds necessary in the application of the chloride of sodium, or common salt, to fowling purposes.

It may be inquired, in what manner does chloroform produce its extraordinary effect on the nervous system? The chloride of hydrocarbon, the nitrate of ethyle, benzin, which is a bicarburet of hydrogen, aldehyde, bisulphuret of carbon, and sulphuric ether, all differ from it more or less; the nitrous oxide or protoxide of nitrogen, differs from it entirely in chemical composition; yet they agree with it in a greater or less degree in the property of producing insensibility to pain. Our ignorance on this subject is not perhaps to be wondered at, when we consider that philosophers, notwithstanding considerable experience, have not as yet succeeded in forming a perfectly satisfactory theory of ordinary intoxication.

The discovery of chloroform is one of the many proofs

which we are daily receiving of the advantage which is derived from the modern method of applying the intellect to the investigation of natural science, instead of abusing it in visionary speculations. In this discovery, the application of which to the relief of mortal suffering has been denounced by superstition, as an infringement of piety, a truly Christian philosophy should surely discern a recompense of the pursuit of truth, conducted in the desire and affection of good; and should behold an earnest of similar rewards to follow upon perseverance in the same course and spirit. Who knows to what extent the revelation of Nature's secrets may progressively increase the amount of human comfort and happiness?—seeing in how large a measure the knowledge of chloroform has stilled the shriek of agony and pain, which is so direful a discord in "the still sad music of humanity."

"Births. Mrs. Meek, of a Son."

MY name is Meek. I am, in fact, Mr. Meek. That son is mine and Mrs. Meek's. When I read the announcement in the Times, I dropped the paper. I had put it in, myself, and paid for it, but it looked so noble that it overpowered me.

As soon as I could compose my feelings, I took the paper up to Mrs. Meek's bedside. "Maria Jane," said I (I allude to Mrs. Meek), "you are now a public character." We read the review of our child, several times, with feelings of the strongest emotion; and I sent the boy who cleans the boots and shoes, to the office, for fifteen copies. No reduction was made on taking that quantity.

It is scarcely necessary for me to say that our child had been expected. In fact it had been expected, with comparative confidence, for some months. Mrs. Meek's mother, who resides with us—of the name of Bigby—had made every preparation for its admission to our circle.

I hope and believe I am a quiet man. I will go farther. I *know* I am a quiet man. My constitution is tremulous, my voice was never loud, and, in point of stature, I have been from infancy, small. I have the greatest respect for

Maria Jane's Mama. She is a most remarkable woman. I honor Maria Jane's Mama. In my opinion she would storm a town, single-handed, with a hearth-broom, and carry it. I have never known her to yield any point whatever, to mortal man. She is calculated to terrify the stoutest heart.

Still—but I will not anticipate.

The first intimation that I had, of any preparations being in progress, on the part of Maria Jane's Mama, was one afternoon, several months ago. I came home earlier than usual from the office, and, proceeding into the dining-room, found an obstruction behind the door, which prevented it from opening freely. It was an obstruction of a soft nature. On looking in, I found it to be a female.

The female in question stood in the corner behind the door, consuming Sherry Wine. From the nutty smell of that beverage pervading the apartment, I have no doubt she was consuming a second glassful. She wore a black bonnet of large dimensions, and was copious in figure. The expression of her countenance was severe and discontented. The words to which she gave utterance on seeing me, were these, "Oh git along with you, Sir, if *you* please; me and Mrs. Bigby don't want no male parties here!"

The female was Mrs. Prodgit.

I immediately withdrew, of course. I was rather hurt, but I made no remark. Whether it was that I showed a lowness of spirits after dinner, in consequence of feeling that I seemed to intrude, I cannot say. But, Maria Jane's Mama said to me on her retiring for the night, in a low distinct voice, and with a look of reproach that completely subdued me; "George Meek, Mrs. Prodgit is your wife's nurse!"

I bear no ill-will towards Mrs. Prodgit. Is it likely

that I, writing this with tears in my eyes, should be capable of deliberate animosity towards a female so essential to the welfare of Maria Jane? I am willing to admit that Fate may have been to blame, and not Mrs. Prodgit; but it is undeniably true, that the latter female brought desolation and devastation into my lowly dwelling.

We were happy at her first appearance; we were sometimes exceedingly so. But, whenever the parlor door was opened, and "Mrs. Prodgit!" announced (and she was very often announced), misery ensued. I could not bear Mrs. Prodgit's look. I felt that I was far from wanted, and had no business to exist in Mrs. Prodgit's presence. Between Maria Jane's Mama, and Mrs. Prodgit, there was a dreadful secret understanding—a dark mystery and conspiracy, pointing me out as a being to be shunned. I appeared to have done something that was evil. Whenever Mrs. Prodgit called, after dinner, I retired to my dressing-room —where the temperature is very low indeed, in the wintry time of the year—and sat looking at my frosty breath as it rose before me, and at my rack of boots: a serviceable article of furniture, but never, in my opinion, an exhilarating object. The length of the councils that were held with Mrs. Prodgit, under these circumstances, I will not attempt to describe. I will merely remark, that Mrs. Prodgit always consumed Sherry Wine while the deliberations were in progress; that they always ended in Maria Jane's being in wretched spirits on the sofa; and that Maria Jane's Mama always received me, when I was recalled, with a look of desolate triumph that too plainly said, "*Now*, George Meek! You see my child, Maria Jane, a ruin, and I hope you are satisfied!"

I pass, generally, over the period that intervened between the day when Mrs. Prodgit entered her protest against male

parties, and the ever-memorable midnight when I brought her to my unobtrusive home in a cab, with an extremely large box on the roof, and a bundle, a bandbox, and a basket between the driver's legs. I have no objection to Mrs. Prodgit (aided and abetted by Mrs. Bigby, who I never can forget is the parent of Maria Jane) taking entire possession of my unassuming establishment. In the recesses of my own breast, the thought may linger that a man in possession cannot be so dreadful as a woman, and that woman Mrs. Prodit; but, I ought to bear a good deal, and I hope I can, and do. Huffing and snubbing prey upon my feelings; but, I can bear them without complaint. They may tell in the long run; I may be hustled about, from post to pillar, beyond my strength; nevertheless, I wish to avoid giving rise to words in the family.

The voice of Nature, however, cries aloud in behalf of Angustus George, my infant son. It is for him that I wish to utter a few plaintive household words. I am not at all angry; I am mild—but miserable.

I wish to know why, when my child, Augustus George, was expected in our circle, a provision of pins was made, as if the little stranger were a criminal who was to be put to the torture immediately on his arrival, instead of a holy babe? I wish to know why haste was made to stick those pins all over his innocent form, in every direction? I wish to be informed why light and air are excluded from Augustus George, like poisons? Why, I ask, is my unoffending infant so hedged into a basket-bedstead, with dimity and calico, with miniature sheets and blankets, that I can only hear him snuffle (and no wonder!) deep down under the pink hood of a little bathing-machine, and can never peruse even so much of his lineaments as his nose.

Was I expected to be the father of a French Roll, that

the brushes of All Nations were laid in, to rasp Augustus George? Am I to be told that his sensitive skin was ever intended by Nature to have rashes brought out upon it, by the premature and incessant use of these formidable little instruments?

Is my son a Nutmeg, that he is to be grated on the stiff edges of sharp frills? Am I the parent of a Muslin boy, that his yielding surface is to be crimped and small-plaited? Or is my child composed of Paper or of Linen, that impressions of the finer getting-up art, practised by the laundress, are to be printed, all over his soft arms and legs, as I constantly observed them? The starch enters his soul; who can wonder that he cries?

Was Augustus George intended to have limbs, or to be born a Torso? I presume that limbs were the intention, as they are the usual practice. Then, why are my poor child's limbs fettered and tied up? Am I to be told that there is any analogy between Augustus George Meek, and Jack Sheppard?

Analyze Castor Oil at any Institution of Chemistry that may be agreed upon, and inform me what resemblance, in taste, it bears to that natural provision which it is at once the pride and duty of Maria Jane, to administer to Augustus George! Yet, I charge Mrs. Prodgit (aided and abetted by Mrs. Bigby) with systematically forcing Castor Oil on my innocent son, from the first hour of his birth. When that medicine, in its efficient action, causes internal disturbance to Augustus George, I charge Mrs. Prodgit (aided and abetted by Mrs. Bigby) with insanely and inconsistently administering opium to allay the storm she has raised! What is the meaning of this?

If the days of Egyptian mummies are past, how dare Mrs. Prodgit require, for the use of my son, an amount of

flannel and linen that would carpet my humble roof? Do I wonder that she requires it? No! This morning, within an hour, I beheld this agonizing sight. I beheld my son—Augustus George—in Mrs. Prodgit's hands, and on Mrs. Prodgit's knee, being dressed. He was at the moment, comparatively speaking, in a state of nature; having nothing on, but an extremely short shirt, remarkably disproportionate to the length of his usual outer garments. Trailing from Mrs. Prodgit's lap, on the floor, was a long narrow roller or bandage—I should say, of several yards in extent. In this I saw Mrs. Prodgit tightly roll the body of my unoffending infant, turning him over and over, now presenting his unconscious face upwards, now the back of his bald head, until the unnatural feat was accomplished, and the bandage secured by a pin, which I have every reason to believe entered the body of my only child. In this tourniquet, he passes the present phase of his existence. Can I know it, and smile!

I fear I have been betrayed into expressing myself warmly, but I feel deeply. Not for myself; for Augustus George. I dare not interfere. Will any one? Will any publication? Any doctor? Any parent? Any body? I do not complain that Mrs. Prodgit (aided and abetted by Mrs. Bigby) entirely alienates Maria Janes's affection from me, and interposes an impassable barrier between us. I do not complain of being made of no account. I do not want to be of any account. But Augustus George is a production of Nature (I cannot think otherwise), and I claim that he should be treated with some remote reference to Nature. In my opinion, Mrs. Prodgit is, from first to last, a convention and a superstition. Are all the faculty afraid of Mrs. Prodgit? If not, why don't they take her in hand and improve her?

P. S. Maria Jane's Mama boasts of her own knowledge of the subject, and says she brought up seven children besides Maria Jane. But how do *I* know that she might not have brought them up much better? Maria Jane herself, is far from strong, and is subject to headaches, and nervous indigestion. Besides which, I learn from the statistical tables that one child in five, dies within the first year of its life; and one child in three, within the fifth. That don't look as if we could never improve in these particulars, I think!

P. P. S. Augustus George is in convulsions.

Atlantic Waves.

ONE brisk March morning, in the year 1848, the brave Steam-Ship, Hibernia, rolled about in the most intoxicated fashion on the broad Atlantic, in north latitude fifty-one, and west longitude thirty-eight, fifty—the wind blowing a hard gale from the west-south-west. To most of the passengers the grandeur of the waters was a mockery, the fine bearing of the ship only a delusion and a snare. Every thing was made tight on deck; if any passenger had left a toothpick on one of the seats, he would assuredly have found it lashed to a near railing. Rope was coiled about every imaginable item; and water dripped from every spar of the gallant vessel. Now it seemed as though she were travelling along through a brilliant gallery, flanked on either side by glittering walls of water; now she climbed one of the crested walls, and an abyss, dark and terrible as the famous Maelstrom, which can't be found anywhere, yawned to receive her. The snorts of the engine seemed to defy the angry waters; and occasionally when a monster wave coiled about the ship, and thundered against her, she staggered for a moment, only to renew the battle with fresh energy.

The cooks and stewards went placidly through their several daily avocations on board this rolling, fighting, shaking craft. If they had been Belgravian servants, or club-house waiters, they could not have performed their duties with more profound unconcern. Their coolness appeared nothing less than heroic to the poor tumbled heaps of clothes with human beings inside, who were scattered about the cabins below. An unhappy wight who had never before been five miles from Boston, was anxiously inquiring of the chief steward the precise time in the course of that evening that the vessel might be expected to founder; while another steward, with provoking pertinacity, was asking how many would dine in the saloon at six, with the same business-like unconcern, as if the ship were gliding along on glass. So tremendous was the tossing; so extreme the apparent uncertainty of any event except a watery terminus to all expectation, that this sort of coolness appeared almost wicked.

Then there was a monster in British form actually on deck—not braving, it was said, but tempting the storm to sweep him into eternity. He astonished even the ship's officers. The cook did not hesitate to venture a strong opinion against the sanity of a man who might, if he chose, be snugly ensconced in the cabin out of harm's way, but who *would* remain upon deck, in momentary danger of being blown overboard. The cook's theory was not ill suported by the subject of it; for he was continually placing himself in all manner of odd places and grotesque postures. Sometimes he scrambled up on the cuddy-roof; then he rolled down again on the saloon-deck; now he got himself blown up on the paddle-box; *that* was not high enough for him, for when the vessel sunk into the trough of the sea, he stood on tip-toe, trying to look over the nearest wave. A consul-

tation was held in the cuddy, and a resolution was unanimously passed that the amateur of wind and water (which burst over him every minute) was either an escaped lunatic or—a College Professor.

It was resolved *nem. con.* that he was the latter; and from that moment nobody was surprised at any thing he might choose to do, even while the Hibernia was laboring in what the mate was pleased to call the most "lively" manner. The Professor, however, to the disgust of the sufferers below, who thought that it was enough to *feel* the height of the waves, without going to the trouble of measuring them, pursued his observations in the face of the contempt of the official conclave above mentioned. He took up his position on the cuddy-roof, which was exactly twenty-three feet three inches above the ship's line of flotation, and there watched the mighty mountains that sported with the brave vessel. He was anxious to ascertain the height of these majestic waves, but he found that the crests rose so far above the horizon from the point where he was standing, that it was utterly impossible, without gaining a greater height for observation, that he could arrive at any just estimate on the subject. His observations from the cuddy-roof proved, however, beyond a doubt, that the majority of these rolling masses of water attained a height of considerably more than twenty-four feet, measuring from the trough of the sea to the crests of the waves. But the Professor was not satisfied with this negative proof; and in the pursuit of his interesting inquiry, did not feel inclined to be baffled. It is impossible to know what the secret thoughts of the men at the wheel were, when the valiant observer announced his intention of making the best of his way from the cuddy-roof to the larboard paddle-box. Now he was to be seen tumbling about with the motion of the ship; at one moment

clinging to a chain-box; at the next, throwing himself into the arms of the second mate. Now he is buried in spray, and a few minutes afterwards his spare form is seen clinging to the rails which connect the paddle-boxes.

Despite the storm without, a calm mathematical process is going on within the mind of that ardent observer. The Professor knew that he was standing at a height of twenty-four feet nine inches above the flotation mark of the ship; and allowing five feet six inches as the height of his eye, he found the elevation he had obtained to be altogether thirty feet three inches. He now waited till the vessel subsided fairly for a few minutes into the trough of the sea in an even and upright position, while the nearest approaching wave had its maximum altitude. Here he found also, that at least one-half part of the wave intercepted by a considerable elevation his view of the horizon. He declared that he frequently observed long ranges extending one hundred yards on one or both sides of the ship—the sea then coming right aft—which rose so high above the visible horizon, as to form an angle estimated at two to three degrees when the distance of the wave's crest was about a hundred yards off. This distance would add about thirteen feet to the level of the eye. This immense elevation occurred about every sixth wave. Now and then, when the course of a gigantic wave was impertinently interfered with by another liquid giant, and they thundered together, their breaking crests would shoot upward at least ten or fifteen feet higher—about half the height of the monument—and then pour down a mighty flood upon the poor Professor in revenge for his attempt to measure their majesties. No quantity of salt water, however, could wash him from his post, till he had satisfactorily proved, by accurate observation, that the average wave which passed the vessel was fully equal to the

height of his eye—or thirty feet three inches—and that the mean highest waves, not including the fighting or broken waves, were about forty-three feet above the level of the hollow occupied at the moment by the ship.

Satisfied at length of the truth of his observations, the Professor, half-pickled by the salt water, and looking, it must be confessed, very cold and miserable, descended to the cabin. Throughout dinner-time a conversation was kept up between the Professor and the Captain—the latter appearing to be about the only individual on board who took any interest whatever in these scientific proceedings. The ladies, one and all, vowed that the Professor was a monster, only doing "all this stuff" in mockery of their sufferings. Towards night the wind increased to a hurricane; the ship trembled like a frightened child before the terrible combat of the elements. Night, with her pall, closed in the scene:—it was a wild and solemn time. Towards morning the wind abated. For thirty hours a violent northwest gale had swept over the heaving bosom of the broad Atlantic.

This reflection hastened the dressing and breakfasting operations of the Professor, who tumbled up on deck at about ten o'clock in the morning. The storm had been subdued for several hours, and there was a visible decrease in the height of the waves. He took up his old position on the cuddy-roof, and soon observed, that, even then, when the sea was comparatively quiet, ten waves overtook the vessel in succession, which all rose above the apparent horizon; consequently they must have been more than twenty-three feet —probably about twenty-six feet—from ridge to hollow. From the larboard paddle-box, to which the Professor once more scrambled, he observed that occasionally four or five

waves in succession rose above the visible horizon—hence they must have been more than thirty feet waves. He also observed that the waves no longer ran in long ridges, but presented more the form of cones of moderate elongation.

Having so far satisfied himself as to the height of Atlantic waves in a gale of wind (the Professor's estimate must not be taken as the measurement of the highest known waves, but simply as that of a rough Atlantic sea), he directed his attention to minuter and more difficult observations. He determined to measure the period of time occupied by the regular waves in overtaking the ship, their width from crest to crest, and the rate of their travelling. The first point to be known was the speed of the ship; this he ascertained to be nine knots. His next object was to note her course in reference to the direction of the waves. He found that the true course of the vessel was east, and that the waves came from the west-north-west, so that they passed under the vessel at a considerable angle. The length of the ship was stated to be two hundred and twenty feet. Provided with this information the Professor renewed his observations. He proceeded to count the seconds the crest of the wave took to travel from stern to stem of the vessel; these he ascertained to be six. He then counted the time which intervened between the moment when one crest touched the stern of the vessel, and the next touched it, and he found the average interval to be sixteen seconds and a fraction. These results gave him at once the width between crest and crest. As the crest travelled two hundred and twenty feet (or the length of the vessel) in six seconds, and sixteen seconds elapsed before the next crest touched the stern, it was clear that the wave was nearly three times the length of the vessel; to write accu-

rately, there was a distance of six hundred and five feet from crest to crest.

The Professor did not forget that the oblique course of the ship elongated her line over the waves; this elongation he estimated at forty-five feet, reducing the probable average distance between crest and crest to five hundred and fifty-nine feet.

Being quite satisfied with the result of this experiment, the hardy Professor, still balancing himself on his giddy height, to the wonder and amusement of the sailors, found that the calculations he had already made did not give him the actual velocity of the waves. A wave-crest certainly passed from stern to stem in six seconds, but then the ship was travelling in the same direction, at the rate of nine geographical miles per hour, or 15·2 feet per second; this rate the Professor added to the former measure, which gave 790·5 feet for the actual distance traversed by the wave in 16·5 seconds, being at the rate of 32·67 English miles per hour. This computation was afterwards compared with calculations made from totally different data by Mr. Scott Russell, and found to be quite correct.

With these facts the Professor scrambled from the larboard paddle-box of the Hibernia. He had also made some observations on the forms of waves. When the wind blows steadily from one point, they are generally regular; but when it is high and gusty, and shifts from point to point, the sea is broken up, and the waves take a more conical shape, and assume fantastical crests. While the sea ran high, the Professor observed now and then a ridge of waves extending from about a quarter to a third of a mile in length, forming, as it were, a rampart of water. This ridge was sometimes straight, and sometimes bent as of a crescent form, with the central mass of water higher than the rest,

and not unfrequently with two or three semi-elliptical mounds in diminishing series on either side of the highest peak.

When the wind had subsided, a few of the bolder passengers crawled upon deck in the oddest imaginable costumes. They had not much to encounter, for about a third part of the greater undulations averaged only twenty-four feet, from crest to hollow, in height. These higher waves could be seen and selected from the pigmy waves about them, at the distance of a quarter of a mile from the ship.

The Professor had been very unpopular on board while the stormy weather lasted, and the ladies had vowed that he was a sarcastic creature, who *would* have his little joke on the gravest calamities of life; but as the waves decreased in bulk, and the wind lulled, and the sun shone, and the men took off their oil-skin coats, and the cabin windows were opened, the frowns of the fair voyagers wore off. Perfect good will was general before the ship sighted Liverpool; and even the cook, as he prepared the last dinner for the passengers, was heard to declare (in confidence to one of the stokers) that, after all, there might be something worth knowing in the Professor's observations.

When the Professor landed at Liverpool, he would, on no account, suffer the carpet-bag, containing his calculations, to be taken out of his sight. Several inquisitive persons, however, made the best use of their own eyes, to ascertain the name of the extraordinary observer, and found it to be legibly inscribed with the well-known name of Scoresby.

That his investigations may be the more readily impressed on the reader's mind, we conclude with a summary of them. It would seem from Dr. Scoresby's intrepid investigations, that the highest waves of the Atlantic average in

Altitude	43	feet
Mean Distance between each Wave	559	"
Width from Crest to Crest . . .	600	"
Interval of time between each wave	16	seconds
Velocity of each Wave per hour .	32½	miles.

German Advertisements.

IT has been thought by rash speculatists who spell the Times, that the art and purpose of advertising have attained the highest perfection in this country. When they perceive that every want that human fancy can invent, or human luxury demand, may be supplied through the agency of one or other of our broad sheets; when any thing that is lost, from a run-away husband to a bolting horse; from a thousand-pound note to a piece of paper "of no use to any but the owner;" from a purse to a pin; is looked for—and seldom without a clue to its recovery—in the columns of the London newspapers, the conjecture that the perfection of publicity has been attained in this country, may be forgiven.

Yet we must, however humiliating to our national pride, undeceive the believers in this pre-eminence, by showing that, in at least one department of advertising, we are totally and hopelessly behind the Germans. The sentimental advertisement is nearly unknown to us. Although advertisements for wives sometimes meet the eye of the English quid-nunc, there is nothing tender in them. The never ab-

sent stipulation respecting the fortune of the required bride, shows that these are any thing but affairs of the heart. A middle-aged lady with plenty of money, generally satisfies the sentiment of the advertiser.

Where real feeling is concerned, we English keep it as secret as possible. We do not, like German juveniles, advertise our broken hearts, but when they are fractured gather up the pieces as speedily as possible, and have them mended in secrecy and silence. Finding sufficient expression for the aspirations of our inmost souls in the tremulous whisperings of private intercourse, or in pen-and-ink outpourings through the penny post, we have not yet acquired the habit of shedding our passionate protestations and fervent appeals over the columns of the public journals. Expensive as we are said to be in all our habits and gratifications, we have not yet contracted the costly habit of publishing to the world the raptures and torments of our loves and our griefs, at from sixpence to one shilling per line—Government duty included. It is true that "O. H!" sometimes promises in the third column of the leading journal to meet Mary Anne "at the old place" at seven; yet he waits till that delightful hour to tell her all he hopes, and feels, and fears. The German is, it would appear, too passionately impatient for this; he makes his declaration at once, not to Fraulin Bertha alone, but to the whole world. He does not merely whisper his tale of love into her single ear: but places it in the Cologne or Prussian Gazette, before the eyes of Europe. He can never place his hand on his heart, and sing—

"I have a silent sorrow here,
A grief I'll ne'er impart;
It breathes no sigh, it sheds no tear,
But it consumes my heart."

The German swain's sorrow, so far from remaining silent, obtrudes itself into the bosom of every family which takes in the newspaper, by whose columns it is conveyed, hot from the press, to his adored Bertha; and his heart is consumed—like an ox on a rejoicing day—in the most public manner possible.

Young ladies reciprocate. Here is a specimen from a damsel in Cologne to her lover in Berlin. She conveys her secret sentiments in the largest German text of the Cologne Gazette, thus:—

Hôtel de la Couronne.

PARDON, Pardon, it was not my fault. Thou desirest a letter, but how and where? Here I cannot remain—why, thou must understand. The last was read and burnt. When shall it be? Not before Whitsuntide. It is possible thou mightest obtain permission after harvest if thou improvest and Grandpapa contin—but—yet. If I should not write, fear not that I shall always love thee.—Thine, JULIA.

Absent lovers congratulate each other on their respective birthdays in the same fashion. The common-place method of writing their congratulations in a private letter is not dramatic enough for a super-sentimental German damsel. Like the school-girl, who was so vain of having been intrusted with a secret, that she told it to everybody; she is so proud of her forbidden attachment, that she proclaims it to the whole continent. The feminine terminal "e" of a pronoun, which occurs in a recent advertisement in the Cologne Gazette, shows it emanates from a lady. Translated, it runs thus:—

A-THREE-TIMES-THUNDERING Love-greeting (*Lebehoch*) to Henry R . . . . at Neu-markt.

"Yes, in thee I have firm Confidence."

The love, affection, and friendship of the Germans, as

expressed on each other's saints' days and holidays, form a very considerable source of revenue to the proprietors of German newspapers. They seldom publish a number without some half-dozen of these greetings. A few of them are a little puzzling to English readers. One would think, for instance, that between brother and sister there would be a sufficiently tacit understanding that, in absence, the one would live in the other's thoughts when a birthday came round. But a public congratulation is preferred. Here is one:—

TO my dear sister Minna at Breslau, a hearty *Lebehoch* on this her birthday, from her brother at Cologne.

A whole circle of friends occasionally club a "Lebehoch" for the local paper, thus:—

TO HENRIETTA A . . . . of Oberpleis, a *Lebehoch* on this her name day.

From several friends in Cologne.

A great proportion of these complimentary addresses are in verse. We would give specimens of this advertising anthology—if we could; but most of them are so execrably unintelligible, that the task of translation is simply impossible.

It is only in the Austrian papers that matrimonial advertisements abound. Ladies as well as gentlemen, with large hearts and small purses, seek suitable partners for life in pithy purpose-like advertisements in which no words are wasted: the Vienna Gazette of the 11th instant, displays the following:—

A TWENTY-EIGHT-YEAR-OLD Nobleman, with a fortune of 100,000 florins, wishes to marry a young lady, either a widow or a maiden. Address W. D. S., *Poste Restante*, Vienna.

Remember, ladies, that one hundred thousand florins is

only ten thousand pounds sterling, and the "twenty-eight-year-old nobleman" is most probably—an Austrian.

A humbler aspirant advertises upon a point of taste. Beauty is evidently his object:—

MARRIAGE INVITATION!

A SINGLE YOUNG MAN, of agreeable exterior, and not without education, who derives from permanent sources a yearly income of 1600 florins, which will shortly be increased, desires to marry a *particularly pretty young lady.* The latter must be well-educated, and fitted by household habits, good nature, sound understanding, and cheerful temper, to contribute to the happiness of a husband. Any lady who feels conscious that she could fulfil these great conditions, is requested to address X. Y. Z., *Poste Restante.*

Another is a wily specimen of wife-angling It is craftily addressed to "parents and guardians."

A YOUNG MAN IN BUSINESS, whose income can be proved to average from 1500 to 1800 florins per annum, desires an introduction to some respectable family where he would have an opportunity of meeting with a young maiden with property, with a view, on the reciprocal satisfaction of all parties, to enter into a more tender engagement. Parents or guardians who are disposed to entertain this proposition, may address, M. N. *Poste Restante,* Vienna.

The next "Marriage invitation" that we light upon, is from a votary of Apollo as well as of Hymen:—

A YOUNG MAN, FAVORED BY NATURE, and musical in his tastes and profession, seeks to marry a gentle maiden or widow who has cultivated the same art. As in the service of Apollo he has been blessed with every endowment except riches, it were very desirable that the lady possessed a certain fortune. Address, by permission, T. Z., *Poste Restante.*

On the 1st ultimo, A STRONG MAN advertised in the Vienna Gazette for a wife. He gave a minute description of his person with all the *naïveté* of a German.

Ladies were requested to take notice that he had a fair beard, but dark eyes; that he was above the common height, and stout in proportion; had an agreeable voice for singing, and was altogether of a character gay and debonnaire; in fact, just the sort of person to make home delightful. He was of noble birth. Candidates were to address their letters, *Poste Restante*, when a personal interview might be obtained. No one who had not an independence need apply:—for it appears that in Vienna "strong men" are at a premium. In the next number of the same paper, a modest "*jeune Monsieur*" expresses a wish for "*une jeune dame*" as a travelling companion to Italy.

Except the last, readers of certain English newspapers are not unfamiliar with such advertisements as the above. Sundry bachelors, anxious to improve their prospects in life, have long communicated their desires in the public prints. English ladies in the same condition have, however, refrained. The Viennese "fair and forty" have no scruples about the matter; they proclaim their wishes sometimes with a little reserve, but more frequently without any reserve whatever. From among the covert advertisements for husbands we select two. The first is from one of the numerous inhabitants of as large a dwelling-house as is to be found in Vienna, and startles the eye with the big letters:—

A WOMAN WISHES! to take the entire charge of a single gentleman, and to do for him altogether. Apply to the Haupstrasse, No. 762, 1st chamber of the 4th storey, door No. 17.

This minutely-detailed address reminds us of Charles Lamb's Brighton Lady, who, a victim to a tender disappointment, told every body she had retired from the world in broken-hearted solitude, and that she lived at number ninety-nine Marine Parade.

The second man-trap is more artfully set:—

TO LET, HALF-YEARLY, at the house of an unmarried lady, of cheerful disposition, a light, agreeable chamber, having a pleasant look out upon the street. A middle-aged single gentleman (*soliden*) preferred. Apply personally, after three o'clock P. M.

The intentions of the unmarried lady of cheerful disposition, who prefers a middle-aged "single" gentleman, but very much prefers a soldier to any youth or widower, are manifestly to convert such a lodger, if she can catch him, into a husband with all convenient speed.

There is no disguise whatever in the next advertisement we shall present:—

MARRIAGE PROPOSAL OF A WIDOW.—The same is childless, of unspotted character, and possessed of property to the value of about 16,000 florins, in real estate. Address, No. 734, Bazaar, Boarmarket. Secrecy guaranteed.

Another lady, whose notification appeared at an earlier date, is even more explicit:—

A VERY SOLID, RESPECTABLE MISS, free, between thirty and forty, not pretty, but still not particularly ill-looking, possessed of a good business, about 700 florins ready money (convention currency), and making a profit of from 20 to 25 florins a month, desires a matrimonial union with a good-looking man of unspotted character, either bachelor or widower, between forty and fifty-five years of age, without children and debts, and having either a situation or a business. Those who may reflect on this proposition with seriousness, are requested to forward their address and a statement of their position, in well sealed letters, to K. B. W., Vienna, *Poste Restante*, until July 17, 1850.

Besides the matrimonial "wants" of both sexes, the "Want places" column in most German papers is generally full. "Perfect" cooks, "brave" housemaids, and "solid" governesses are continually publishing their qualifications to find masters and mistresses.

We take leave of these matrimonial and general "Wants," to notice a class of advertisers who apparently want nothing but to make themselves notorious. One sentiment comes out with extreme prominence in the advertising department of the German papers—personal vanity. It is by no means uncommon for a person who has no one to congratulate him, no one to puff him off as a dear but absent friend or lover, to advertise *himself*. A gentleman named Schmidt (the "Smith" of German nomenclature) being most desirous of acquainting Europe that he has obtained a small government appointment, and that he was a member of the defunct National "*Versammlung*" (Association)—concocts an advertisement, stating that several persons are going about the European Continent (he names no place) contracting debts in his name (namely, "John Smith"), and bidding them beware; for he will not pay any of those debts, for he is not any of the John Smiths aforesaid, but Mr. Under-clerk-of-the-Berlin-Custom-House John Smith (ex-member, &c.).

We find in the same paper that another gentleman is oppressed with a conviction that his movements are of infinite solicitude and consequence to the whole of Europe. His announcement commences with a startling

NOTICE!—I beg my numerous friends and acquaintance in the several parts of Europe who may be anxious to communicate with me, to address their letters to me at the seat of war, Schleswig-Holstein.—JULIUS H———, Captain of the army of Schleswig-Holstein.

As the gallant captain has not paid us for advertising his whereabouts, we have suppressed all but the initial of his name.

Births are always made known in the papers by the husband; and in the west of Germany, when the male population is increased, the new comer is always described as a

"powerful" boy. Deaths are announced in long-drawn epitaphs, describing at lugubrious length not only the virtues of the deceased, but the inconsolable sorrow of the relatives.

We conclude this Chapter of Advertising Curiosities with the announcement in the *Weiner Zeitung* of a book "for all classes," that we fear has already had a very extensive sale in the land which originated the bowl and dagger school of literature:—

FOR READERS OF ALL CLASSES.

THE DARK DEEDS OF CIVILIZED MAN, with the wonderful interventions of Providence for their discovery and punishment. By Dr. Ch. Fred. Grebii, with copperplate engravings. Contents,—

I. The Murder of Mr. O'Connor by the Mannings; Husband and Wife.

II. The Fourfold Murder by James Bloomfield Rush; with other trials.

"Give me the ballads of a people," said Voltaire, "and I will write their true history." Had he lived till now, he would have found the advertisements of a people a better index to their social tastes and habits. One supplement of the Times, a file of the *Constitutionnel*, or a few numbers of the most extensively circulated of the German papers would be more suggestive of the wants and manners, locomotive, literary, and commercial habits of their various readers, than all the best treatises ever penned.

The Methusaleh Pill.

MR. PRATTLES was a poor man. He had a wife and a large family dependent on him; and his printing business brought him in only a very slender income. His neighbors often wondered how he contrived to make both ends meet. They knew nothing of the struggle that went on within the walls of Mr. Prattle's establishment. The surrounding tradesmen were his customers. He had a shrewd notion of business, however. When the grocer over the way gave him an order to print fifty copies of "Fine Congou at three-and-sixpence," he knew very well that the grocer down the road would soon empower him to print bills advertising "Fine Congou at three-and-fivepence three farthings;" to which would be added the further intelligence that "now was the time!" The keener the competition in the neighborhood, the better for Mr. Prattles. Among other orders, Mr. Prattles one day received a command to strike off a thousand labels for "Mr. Smith's Universal Pill." No sooner had he delivered the first batch of labels, than a second order was given for five thousand more labels; and the second order was immediately succeeded by a third, and a third by a fourth.

This influx of business surprised Mr. Prattles; and he began to envy the prosperity of Mr. Smith. Presently it struck him that it was no difficult matter to manufacture a pill. But how could he hope to invent a story so plausible as that which enveloped Mr. Smith's pill-boxes. There was a difficulty here. Mr. Smith had fortified himself in every possible way. He had selected the most obscure villages of the country from the gazetteer, and had written very characteristic testimonials from imaginary patients residing *near* these remote localities. His pill was—these spurious documents declared—an infallible cure for every disease. He tacked to his pill the properties of the entire pharmacopœia. Mr. Smith's pill was advertised to accomplish every thing of which medical science was capable. The history of Mr. Smith's Pill was a narrative of blessings conferred upon frail mortality. By the virtues of Mr. Smith's Pill John Dobbins of Cwyrytchemwll, in Wales, had been cured of a bad leg, which had baffled the ingenuity of the first surgeons in the country. Mr. Smith's Pill restored Miss Brown of Briar Cottage, near Battledore-cum-Shuttlecock, to life, when the rattles were in her throat. It cured asthma, consumption, water on the brain, dropsy and influenza; it was infallible in scarlet fever, yellow jaundice, and blue cholera, gout, rheumatism, tic-doloreux, sciatica, locked jaw, and cancer invariably disappeared from every patient respectively and concurrently afflicted with any or all of these diseases, after the third box.

Mr. Smith's ingenuity was not even exhausted with these arrangements. He understood his business perfectly, and felt that, in order to make his pill go down, it was necessary to secure the patronage of a peer of the realm. With this view he entered into negotiations with a poor nobleman residing abroad. The transaction was a long time

pending, but at length it was signed and sealed between Mr. Smith and the Earl of Rottenborough, that his lordship should, for and in consideration of the sum of six hundred per annum, to be paid to him, the Earl of Rottenborough, by the said Mr. Smith, consent to be cured in public advertisements, by means of Mr. Smith's Omnipotent Pill, of any disease of which the said Mr. Smith might choose to call upon him, the Earl aforesaid, to testify he had been cured. Under these auspices Mr. Smith's Pills had thrived exceedingly, but it was not till Mr. Smith conferred upon himself a diploma, and inducted himself into the chair in a college which he endowed, for that single purpose, somewhere, that the Universal Pill was found in every respectable house in the three kingdoms, as the special and particular pill of Professor Smith, M. D., without whose signature all others were spurious.

Poor Prattles! how could he, who had not twenty pounds in the world, hope to compete with the rich Professor Smith? When he recounted the advantages which his rival possessed, and reflected upon his own moneyless condition, he was ready to give up his idea in despair. At this crisis of his fate his wife, one day in purest jest, told him that care would soon make him look as old as Methusaleh. This simple remark, he affectingly tells at the present time, decided him. He would have a Methusaleh Pill! His wife tried hard to persuade him from embarking in so expensive a speculation, but he was deaf to her pleading. He wrote forthwith to his cousin, who was a chemist at Bath, and asked him to mix him a harmless pill. "Let the properties it contains neutralize one another." This was the simple direction. A bribe of a third share in the speculation decided his cousin, the chemist, to set to work immediately. The next step was to frame a very learned

history of the pill—to trace its descent from Methusaleh to Prattles. With this object, Prattles consulted a battered old schoolmaster of his acquaintance, whose scraps of ancient lore sufficed for the printer's purpose. In a few hours a very interesting story, narrating the history of the receipt, was fabricated and ready for the press. It ran as follows :—

"It is well known to most people that the venerable Methusaleh lived to the good old age of NINE HUNDRED AND SIXTY-NINE YEARS. The secret of so long a life has for ages remained an IMPENETRABLE MYSTERY. In these degenerate days men seldom live to gaze upon their grandchildren; but in the days of Methusaleh matters were very different. Men lived for centuries. What potent power—what subtle elixir—held body and soul together for so long a period? 'That is the question.' Abot two years ago two gentlemen were travelling in THE ARID DESERTS OF ASIA MINOR. They fell in, one evening, with an encampment of Arabs. They were most hospitably received by the Mussulmen. The first peculiarity they remarked among the Arabs was that there were several men in the encampment who, though they looked very old, were nevertheless active in their gait and lively in conversation. Our travellers entered into conversation with one of these hoary sons of the desert; the old man was very communicative.

"'I was in your country many years ago, when Charles the Second was King, I played tricks before him: he was a jovial fellow. Ah! I was young then," and the old man heaved a deep sigh. The travellers, it may well be imagined, were surprised; and, at first, somewhat incredulous.

"'There is a man—but he is very old now—who fought in Palestine when one of your king's sons helped in a fool-

ish war—I think you Christians call it the Holy War.' The old man pointed to a figure crouched to the earth. It was that of a very old man, whose hair was white as silver. 'That man,' continued the Arab, who was addressing the travellers, 'is upwards of six hundred years old!'

"'Incredible!' our travellers exclaimed.

"'Hush!' the old Arab continued; 'you of the degenerate West know nothing of this matter. The secret remains with us—to you it is unknown—an undiscovered mystery. Have you ever heard of Methusaleh?'

"The travellers replied in the affirmative.

"'Do you know by what secret he prolonged his life to the ripe old age of nine hundred and sixty-nine years?'

"The travellers confessed their profound ignorance. Forthwith the old Arab fumbled, with his ebon hands, about the folds of his turban, and presently drew therefrom a tattered piece of parchment, so dirty, besmeared with grease and discolored by age, that the Arabic characters written upon it could be deciphered only by the most practised Arabic scholar. One of the travellers happened to be a proficient in Arabic. He begged the old man to allow him to peruse the precious document. To this the wily Arab consented, on the conditions that it should be read in his own hands, and that he should receive a large sum of money for allowing the travellers to transcribe its contents. These preliminaries having been arranged, the party entered the nearest tent, and the travellers became possessed of the invaluable life-preserver. On their return to England the travellers entered into a negotiation with the present proprietor of the recipe, who offers his

METHUSALEH PILLS

to the British public at thirteenpence-halfpenny per box.

None are genuine unless signed by the proprietor, John Prattles. Agents wanted for every part of the world. N. B. The Methusaleh Pills are carefully made up after the Methusaleh Receipt, from particular herbs known only to the proprietor of this invaluable medicine. As a proof of the efficacy and wonderful properties of the Methusaleh Pill, Her Majesty's Government have granted to the proprietors, to the exclusion of all pretenders, the use of a splendid RED AND BLACK STAMP. All pills pretending to be Methusaleh Pills without this stamp are forgeries, and all imitation of it is felony."

This notable prospectus was concocted in the back parlor of Mr. Prattles's house. Mr. Prattles had not been a printer all his life for nothing; he had picked up, with his types, the trick of editorship, and revised the schoolmaster's rough draft with skill. Mr. Prattles then wore a paper cap and an apron. He published his prospectus, adding now and then new bits, to give it additional zest. At one time it was headed

"CHEAT THE UNDERTAKERS, AND LIVE SIX HUNDRED YEARS!"

Another, the prospectus began with

"LIFE PROLONGED TO AN INDEFINITE PERIOD BY THE METHUSALEH PILLS!"

In a few years Mr. Prattles was a man of property. In time he was even able to sneer at Professor Smith, with his tool, my Lord Rottenborough.

When some foolish old man, in a remote rural district, died at an advanced age, public attention was particularly called to Prattles's patent, by a statement on the part of the firm, that the instance of longevity in question was undoubt-

edly the effect of the Methusaleh receipt. Prattles pocketed his shillings, and smiled at the world: he laughed and won. To make all square, as far as possible, he even went to the length of eating a few charity dinners, and subscribing a few pounds in aid of hospital and other funds.

Prattles's Pills sold prodigiously. Whenever a doubt was expressed respecting their efficacy, it was silenced by reference to the sanction of Her Majesty's Government, whose mark picturesquely adorned each box, to prove the genuineness of the Methusaleh Pills; just as plate and jewelry are stamped by the assay authorities to show the standard excellence of the gold or silver. Publicly, Mr. Prattles complained that the Government charged him threehalfpence per impression, for these "Hall Marks;" privately, he whispered that to them he owed his fortune.

Like all those who have much, Mr. Prattles wanted more. After he had exported millions of his Methusaleh Pills to every corner of the Queen's Colonial dominions, he attempted to introduce them into foreign medicine markets. To his chagrin, he found that in *no other country in the world* but in these dominions (except the United States of America) were articles of that description allowed to be vended—much less are they sanctioned for the sake of a paltry revenue. On the contrary, individuals, Mr. Prattles learnt, who were discovered selling such things on the Continent, are severely punished; even newspapers who advertise them, are fined. Although he met with native patent medicines during his travels on the Continent, yet they are real remedies; having all been submitted to a Board of Government Officers distinguished for their proficiency in pharmacy and medicine, who decide whether the non-professional public can be safely trusted with them or not. Mr. Prattles, however, made a brilliant fortune by his gullible countrymen.

Mr. Van Ploos on Penmanship.

I AM a Dutchman. My father, Mr. Lastman van Ploos was, for many years, one of the principal writing-masters in Amsterdam. He taught ladies and gentlemen, as well as lawyers' clerks, with much credit to himself, and advantage to them. But the class among whom he was considered to be the most expert and successful, was that of the merchants' and traders' apprentices, whom he taught to write a free, bold, rapid, legible hand. Some few were not so good of course; and no two were exactly alike; I speak, however, of the great balance in his favor. The most part of those who had learned to write of Mr. Lastman van Ploos could be known by their hands, which were accounted the most excellent, for good, quick writing and easy reading, in all Amsterdam.

There was a large family of us. I am afraid to say how many brothers and sisters I had, especially sisters; but all of them were taught writing by my father, and though some wrote better than others, the whole family of the van Plooses wrote good hands — with one exception. That melancholy one was I. What pain it was to my father to

receive the letters I wrote to him! Yet it was not his fault; for he did not teach me.

I will explain how this was. A few words will show why my writing did not, and to this day does not, deserve to be called a "hand," but rather a claw—and a broken claw, too, sometimes.

My father having made a considerable sum by his lessons in writing, entered into a small trade in pipes and tobacco. He was so successful in this that he soon became a merchant; abandoned pens and paper for meerschaums and kanaster; and determined that one of his sons should be educated in England, and become his agent there as soon as he was old enough for so important an office. I was the son selected for this purpose, and at the age of eight I was consigned, together with a large stock of Dutch pipes, to the care of a friend of my father's, Mynheer Trunkenbooms, a dealer in petticoats and other woollen articles,—a most prudent and respectable man.

Arrived in London, I was placed under the care of Mynheer Trunkenbooms' agent's aunt, from whom I received the first rudiments of instruction, till one day the good lady's eye was attracted by the advertisement of a country schoolmaster who undertook to board and educate young gentlemen at the sum of six and twenty pounds a year, feeding them upon the best of diet, and teaching them every thing requisite to be known. This seemed so excellent a thing that she represented the case in the most eloquent manner to Mynheer Trunkenbooms on his next visit to London, who thought it would be just what my father wished. Accordingly I was sent to the school of Mr. Simon Spiphlicate, of Minerva House, Ponderwell, Hertfordshire.

I shall say nothing about my general education. I shall

speak only of the writing department of this academy. Oh, it was very different in its method to that of my father. There were two classes; the big boys' class, and the little boys' class. I was in the latter. At twelve o'clock every day we were called to writing, and placed at the same desk as the upper class had used before us, and on the same forms. These forms, to save the expense of two sets suited to the different heights and sizes of the two classes, were so contrived as to suit neither, being too high for the big boys, and too low for us little ones. Thus, the upper class always presented a long row of hunched backs, and boys' noses pointing perpendicularly down their quills; while the lower class presented a long row of stiff necks, and small noses pointing up their quills. This arrangement was well enough for a few intermediate sized boys; but the great majority were in the position I have described. We wrote with quills; steel pens had not then come into use. Our pens seldom suited us; we could not mend them ourselves, and we dared not ask to have them mended, because when this favor was granted by Mr. Spiphlicate, the acquiescence was al most always accompanied by a slap on the cheek directly after the pen was returned, or a crack on the crown by one hard knuckle as the boy received it. A crack on the tender crown of a little boy from the bony knuckle of a man's hand who does not measure the respective powers of giving and receiving, is not only something to feel at the time, but never to forget afterwards. I always had a singing in my head, and a mist over my eyes, for a quarter of an hour after it. The same knuckle-crack was also administered for a bad method of holding the pen, or for thick up-strokes, crooked down-strokes, and blots and smears. The sudden blow generally caused a large drop of ink to start out from the pen, and then you had a second crack on the nob for

this new blot, the crack coming, perhaps, exactly in the same place, all sore and dinging as it was; and this made me sick to death, or else it was a mad pain.

Mr. Simon Spiphlicate was a preacher, and had a subscription meeting-house. He stood six feet two, out of his shoes. He was very thin, but had large bones. His face was an unhealthy pale, with a mouldy tint in each cheek, and his great nose was swollen, and red at the end. He had weak eyes, and wore silver spectacles with immense round glasses The upper parts of his legs were thin, but from the knees downwards they were extremely large, and always cased in long black gaiters, strapped under the shoe, and buttoned all the way up to the bend of the knee. This dreadful figure, (which, to the apprehension of a little boy, under my circumstances, was not so much like that of a being of his own species, as of some gigantic foreign bird,) stalked up and down behind our backs all the time we were writing. The suddenness with which a blow would fall—or the horrible expectation of it, as he stood breathing down through his nostrils upon the back of my head—made the whole time of this lesson a torture of the mind. We all wrote as in fear of our lives.

When the lesson was over—oh, what a moment this was! True, it was over; but then we all had to show up our copies to him in succession. He now stood twirling a short ruler in his fingers. When the writing was very bad, or blotty, he seized one of the culprit's hands—often the right hand—and, bending the fingers down, beat it over the knuckles; so that in a few minutes afterwards they were swollen as large as marbles, and all of a red and purple hue. This it was often my fate to receive. I was four years at Minerva House Academy. Of the methods of instruction in English grammer, in Latin and Greek rudiments, in arithmetic,

and in geography and the abuse of the globes, I will say nothing; but as for writing, I came away with no epistolary "hand" of any kind, no notion of how it was to be acquired, and with a mortal hatred of the fine art of penmanship in which all our family excelled.

Mr. Spiphlicate gave me cake and wine on the morning I left; and, all smiles, shook hands with me at parting; but my heart shuddered within me at his touch. The recollection of his smiles, and the subdued and tender sound of his voice in saying "Good-bye, van Ploos," puzzled my conceptions of human nature for years afterwards. "Good" with a soft tone, and a rising inflection—"*Good* bye!"—and the sallow smile of the griffin!—when I think of it now, though twenty-seven years have elapsed, I sometimes feel as if I should like to smash his spectacles upon his face, and assault him with a new pen.

At the age of about thirteen I left the academy of Mr. Simon Spiphlicate, and after being refused admission into several merchants' counting-houses on account of my "hand," I was placed with a wholesale tobacconist in Oxford Street, to learn the business. My education was at an end, and my penmanship being left to itself, to proceed upon the beautiful no-foundation just described, I gradually fell into a sort of writing of the very worst kind—slow and shapeless, or rapid and illegible, and seldom twice alike. This continued through years, under various circumstances of life, till here I am, a tobacconist of forty, who can't write his wife's Christian name in a manner fit to be read!

It may here be asked, by those who consider this matter of hand-writing in a mechanical light, whether there is not something awkward or unsuitable in the shape of my hand and fingers, or a certain inflexibility, inapt at all neat and curious manipulations? Not so; but the contrary. I

inherit from my father an artist's hand—not elegant in shape, but small, flexible, and having a natural instinct and cunning for any nice operations. My father, besides his matchless "penmanship," was not only a devout admirer of Gerard Dow, and all the Dutch painters, who finished every thing to the minutest touch, but often amused himself with making copies of some fine etchings from these. This I also did, and attained such proficiency with my pen in making pen and ink drawings that they could scarcely be known from copper-plate etchings. I likewise took readily to musical instruments; and I did not find the same degree of difficulty in the manipulation of strings, the stopping of "ventiges," or the touching of the keys, that is common to nearly all beginners. I began with ease, and always improved rapidly in proportion to finding time to practice. I have a turn for cabinet-making, am a good plain carpenter (had almost said "cook"), have some skill in practical mechanics, and the use of all the tools and instruments, and believe that if I had been a dentist I could have taken out a double tooth in a manner that would have delighted you. . . . . .

But is there no other reason, besides early misdirection and cruel treatment, for the infamous scrawl I write? Is there nothing in nervous temperament and character which may account for it, or at least bring in a new and important element to the consideration?

If my father was a slow, skilful, pains-taking, fine-finishing, phlegmatic Dutchman, what was my mother? I shall say briefly, that Madam van Ploos was a fiery-spirited Spanish lady, who always very much looked down upon my father, and despised his "hand." Her parents had made up the match, she being quite a girl at the time. She was my father's opposite in most things. She had no patience, no

sort of application, no natural skill in any thing; she had extraordinary energies and animal spirits, did every thing upon impulse, and alternated the warmest affections and tenderness with frequent bursts of fury that sometimes made my father's pen fly clean out of his hand!

But let us now consider a little as to what is going on "within." Now must come my statement of what I feel —of my natural ordinary sensations, in the act of writing. My thoughts, ideas, or in short, the impressions and opinions I wish to convey upon paper, come upon my mind with such a rush—all at the pit entrance, and all trying at once to get through the door—that I have absolutely no patience to make a letter, but rush scrawling along, so that it often happens I cannot myself read what I have written, on turning to it a few days afterwards. The reason is—it is not writing at all, but a set of strange marks and ciphers of no system. Would any good early teaching have superseded this? I think, in a great degree, it would. It would not have prevented a rapid scrawl, which is the result of a peculiar character in mind and temperament; but it would have a strong tendency to render the scrawl legible.

The question of how far the character of men is to be known by their handwriting, involves many very curious and interesting considerations. By some it has been regarded as a matter of divination or conjuring; but in any case there is *something* true to be made of it. We see advertisements, from time to time, in the newspapers, offering to divine and divulge the character of any unknown person whose handwriting is brought to them, at the small charge of five shillings per character. By these means men, about to engage in partnership, or to have important transactions with any one, may know beforehand the character of the person with whom they will have to do; in

like manner lovers may be made wise beforehand, and those who have secret enemies may be warned and enabled to prepare for the worst. Is this all nonsense? Not *all;* but it is simply pushing, as we commonly see, a fact beyond its legitimate bounds, till it becomes an absurdity, and no fact at all worth a pinch of snuff.

Sitting in the little back parlor of my shop at Knightsbridge, trying the merits of several new cases of pipes from Holland, to see how they performed, I fell into a long meditation, the other day, on this very subject, and, as cloud after cloud rose with august placidity into the air, and bowed its volume down from the ceiling, to expand and disperse itself all over the room, it seemed to me that I had elaborated and mastered the comprehension of the whole of the subject,—though I had lost several customers in consequence, who, I believe, had entered my shop, and gone out again, none the wiser.

In the proposition that character can be discovered by the handwriting, there is some truth, which may be considered under several distinct heads:—

1st. Physiologically. As the nervous system has of necessity an influence on the handwriting, the amount of excitability in the system is displayed, more or less, according to the feelings of the moment. You may often recognize the physical temperament very plainly. The cold man, whose blood moves slowly, will generally write slowly, carefully and neatly, if not formally. The pen of the man whose blood moves quickly, dashes along, heedless of the shape of letters, or of making letters at all. The man of impulse and the man of deliberation are thus very often made apparent. It must, however, be borne in mind that the impulsive man may be very capable of the most serious deliberation, and the deliberative man (though this is less

likely) be capable of impulse. A general impression is all that can be arrived at, in most cases.

Secondly. Let us look at this Metaphysically. That the mind influences the body, nobody doubts; and it is only reasonable to admit that the peculiarity of individual minds of any strength, will communicate itself to the action of the hand in writing. Those who employ the reasoning powers chiefly, will usually write slowly and legibly—(perhaps not with any regularity, for that depends upon mechanical aptitude)—while those whose imagination, passions, or fancy, is chiefly called into play, scrawl rapidly and seldom very legibly. We expect the logician to write every word with clearness and precision; we expect nothing of the sort from the dramatist. But even logicians are sometimes in a hurry; may occasionally scrawl wildly as the dramatist, so that a judgment on general principles is all that can reasonably be expected.

Thirdly, we will look at the question Biographically. How were my previous positions borne out? I found, by reference to Nichols's and Smith's collection of Autographs, and the *Isographie des Hommes Célèbres* (which I one day went to see at the British Museum, leaving my shop in charge of a youth), that in many cases the writing was very much what I should have expected; in others, it was just the opposite. Here are a few of those I most especially noted.

Queen Elizabeth. She was taught writing by Roger Ascham. Her first copy-book is to be seen in the Bodleian Library. She began well, and improved rapidly. While Princess, she came to write a beautiful engrossing hand—clear and regular almost as an engraving of letters. I turned to another signature after she had been queen a long time,—and what was my dismay! Melancholy change!

The letters were now thin, spiteful,—the lines irregular—an ugly old maid's version of her former hand—and the signature was a thing to make one bless one's self! It was an immense, thin, mountebank's letter—and then another such letter, with a signature worked between,—the whole having the appearance of an outline of some wild scaffolding whereon stood the pale grotesque skeletons of fireworks, as they look before explosion.

Martin Luther. The writing was firm and legible, though not very equal nor very straight. This I thought a true version; as he had strong passions, as well as strong reasons for what he did.

Sir Thomas More. By no means displaying the calm firmness he possessed; the lines crooked, and tumbling down hill.

Rubens. Manly, bold,—with a careless ease and clearness denoting mastery of hand.

Lord Bacon. Very like an elegant modern short-hand. Clear, neat, and regular. The signature involved with broken lines, as if a fly had struggled and died in a spider's web.

Voltaire. Very clear, regular, steady, and straight; evidently not written rapidly, but with a continuous ease, which might go on writing book after book in just the same way.

Oliver Cromwell. Large, bold, legible, steady, sharp, and straight. The signature made up of halberds and pointed palisades. But another letter of his was not at all of this character. It displayed a perplexed and undecided mind—at the time it was written.

Prince de Condé. Not at all in accordance with the strong expression and buffalo-features of his face.

Charlotte Corday. Firm, clear, steady, but not without emotion.

Curier. Very like the writing of Charlotte Corday, but not so strong and compact.

Danton. Wilful, daring, without method or care.

George the Fourth. Not at all the very gentlemanly hand most people would expect—rather like a housemaid's.

Pope. Very bad, small, full of indecision; a very hedge-row of corrections and erasures.

Cardinal Wolsey. A good hand, disturbed only by nervous energy and self-will.

Porson. Correct and steady; the reverse of his personal appearance and habits.

Shakspeare. A very bad hand indeed, confused, crowded, crooked in the lines, and scarcely legible.

Napoleon. Still more illegible. No letters formed at all; the signature a mere hasty "scrimmage" with the pen.

A few words of general gossip on the subject. Of women's handwriting not so much can be said, at least in our own day, when the system of writing a fine hand of a particular kind renders so many of them all alike—hands which seem to be very beautiful and legible, but which are often not at all so, from the letters *m*, *n*, *u*, *i*, and very often *a*, *s*, and *r*, being a mere series of up and down elegancies, which are indistinguishable. But among those which display character, it has often been of a very different kind to the one expected. On the other side, see what Shakspeare's experience has noticed—

Malvolio. By my life, this is my lady's hand!—These be her very *c*'s, her *u*'s, and her *t*'s; and thus makes she her great P's. It is in contempt of question my lady's hand.—*Twelfth Night.*

It was a forgery! Still the fact of imitation showed there were characteristics to imitate, though whether

answering to the actual character of the lady is the great point at issue.

Here are two very characteristic observations of two very celebrated men. Locke says, in a letter to Benjamin Farly, that "the quicker a man writes, the slower others read what he has written!—this," he pointedly adds, "being a remark that may concern the writers of *books* as well as letters." Lord Chesterfield says in one of his letters to his son—"Every man who has the use of his eyes, and of his hand, can write whatever hand he pleases."

I had made notes at the Museum for many more remarks, but, on returning home to Knightsbridge, I found that the little black Virginian boy, with feathers, who hangs on the left-hand side of my door, had been stolen, which has so disheartened me with the study of human nature, for the present, that I shall drop my pen. I will merely conclude with a story from a French historian I have lately read, which I think admirably to the point, and will now translate.

In the early part of the reign of Louis the Fourteenth, a Bolognese, named Primi, who possessed a handsome face, and was a man of wit, and an adventurer who had no objection to make his fortune by the best means that offered, came to France to see what good luck might befall him. During his journey from Lyons to Paris he made the acquaintance of one Claude Duval, a particularly clever enterprising person, who on their arrival presented him to the Abbé de la Baume, afterwards Archbishop of Embrun. This reverend personage suddenly conceived the idea of playing off a novel and ingenious hoax, which has been called *une singulière mystification*. Finding in the boldness and finesse of Primi, together with his dialect, made

up of Italian and French, his adroitness and personal address, all the qualities desirable for the execution of his project, he shut himself up with him for six weeks, seeing nobody else, excepting the Duke de Vendôme, and the Grand Prior of France, his brother, to whom he presented Primi. All three employed the whole of this time in teaching Primi the private history of persons of the Court—their intrigues, their friendships, their loves, their hatreds, &c. As soon as they considered him sufficiently indoctrinated, the Abbé de la Baume spread it abroad that he knew an Italian from whom nothing in the past or future was hidden, the moment he set eyes on the handwriting of any person concerning whom any thing was sought to be known. They took care that the first signature should be that of a person whose history was fully known to Primi, by their instructions. Lords and ladies, all the wealthy middle-class, men and women, the court and the city, hurried to Primi with autograph letters and signatures in their hands, and all came away dumb-foundered at his answers! From what he told them of the past, they fully believed all he told them of the future. The Countess of Soissons, above all, took him under her patronage. From her he incidentally extracted all sorts of intrigues of the Court, the whole of which he most promptly turned to good account. From the wonderful things that Primi told her about herself, she described him to the king as a man of preternatural gifts, and begged his majesty to allow Primi to examine his handwriting. After some hesitation the king sent a letter, apparently in his own hand, which the Countess immediately took to Primi. The Italian examined it carefully, and informed the Countess that this writing was that of an old miser, a usurer, a sort of old pawnbroker,—a fellow incapable of any good action. The lady stood con-

founded. She assured him that this once he had blundered most stupidly; but Primi persisted in assuring her that he had made no mistake. The Countess took back the letter to the king, and in courtly language conveyed to him Primi's interpretation of the character of his Majesty's handwriting. His Majesty was astonished, for the letter was, in fact, not his handwriting, but that of M. le President Rose, his private secretary, who so closely imitated the king's handwriting, that Louis continually made him write letters that he wished to be supposed in his own hand. This fact Primi had previously learnt from one of his instructors, the Duke de Vendôme, together with the private character of M. le President Rose. The king was determined to fathom the mystery. It was too deep and perplexing to be endured. The next morning he ordered his chief *valet de chambre* to bring the Italian to him in his private cabinet. "Primi," said his Majesty, "I have only two words to say:—your secret!—for which I will give you a pension of two thousand pounds:—if not, the gallows!" It is hardly necessary to say which of the two was chosen by the Italian.

The Mysteries of a Tea-Kettle.

AT one of Mr. Bagges's small scientific tea-parties, Mr. Harry Wilkinson delivered to the worthy gentleman a lecture, based principally on reminiscences of the Royal Institution, and of a series of lectures delivered there, by Professor Faraday, addressed to children and young people. For it is not the least of the merits of that famous chemist and great man, Professor Faraday, that he delights to make the mightiest subject clear to the simplest capacity; and that he shows his mastery of Nature in nothing more than in being thoroughly imbued with the spirit of her goodness and simplicity.

This particular Lecture was on Natural Philosophy in its bearings on a kettle. The entertainment of a "Night with Mr. Bagges" was usually extemporaneous. It was so on this occasion. The footman brought in the tea-kettle. "Does it boil?" demanded Mr. Bagges.

"It have biled, sir," answered the domestic.

"Have biled, sir!" repeated Mr. Bagges. "*Have* biled! And what if it has 'biled,' or *boiled*, as I desire you will say in future? What is that to the purpose? Water may be frozen, you simpleton, notwithstanding it *has* boiled.

Was it boiling, sir, eh? when you took it off the fire? That is the question, sir."

"Yes, sir, that was what I mean to say, sir," replied Thomas.

"Mean to say, sir! Then why didn't you say it, sir? Eh? There—no, don't put it on, sir; hold it still. Harry, reach me the thermometer," said Mr. Bagges, putting on his spectacles. "Let me see. The boiling point of water is two hundred and—what?"

"Two hundred and twelve, Fahrenheit," answered Master Wilkinson, "if commonly pure, and boiled in a metallic vessel, and under a pressure of the atmosphere amounting to fifteen pounds on every square inch of surface, or when the barometer stands at thirty inches."

"Gracious, what a memory that boy has!" exclaimed his uncle. "Well; now this water in the kettle—eh?—why, this is not above one hundred and fifty degrees. There, sir, now set it on the fire, and don't bring me up cold water to make tea with again; or else," added Mr. Bagges, making a vague attempt at a joke, "or else—eh?—you will get yourself into hot water."

Mr. Thomas was seized with a convulsion in the chest, which he checked by suddenly applying his open hand to his mouth, the effort distending his cheeks and causing his eyes to protrude in a very ridiculous manner, whilst Mr. Bagges disguised his enjoyment of the effects of his wit in a cough.

"Now let me see," said the old gentleman, musingly contemplating the vessel simmering on the fire; "how is it, eh, Harry, you said the other day that a kettle boils?"

"La!" interrupted Mrs. Wilkinson, who was of the party, "why, of course, by the heat of the coals, and by blowing the fire if it is not hot enough."

"Aha!" cried her brother, "that's not the way *we* account for things, Harry, my boy, eh? Now, convince your mother; explain the boiling of a kettle to her: come."

"A kettle boils," said Harry, "by means of the action of currents."

"What are you talking about? Boiling a plum-pudding in a tea-kettle!" exclaimed the mystified mamma.

"Currents of heated particles—of particles of hot water," Harry explained. "Suppose you put your fire on your kettle—on the lid of it—instead of your kettle on your fire,—what then?"

"You would be a goose," said his mother.

"Exactly so—or a gosling,—rejoined her son; "the kettle would not boil. Water is a bad conductor of heat. Heat passes through the substance of water with very great difficulty. Therefore, it would have a hard matter to get from the top of a kettle of water to the bottom. Then how does it so easily get from the bottom to the top?"

"Ah!" sighed Mr. Bagges. "In my young days we should have said, because the heat rises, but that won't do now. What is all that about the—eh—what—law of ex—what?—pansion—eh?"

"The law of expansion of fluids and gases by heat. This makes the currents that I spoke of just now, mamma; and I should have spelt the word to explain to you that I didn't mean plums. You know what a draught is?"

"I am sorry to say I do," Mr. Bagges declared with much seriousness, instinctively carrying his hand to the region of the human body from the Latin for which is derived the term Lumbago.

"Well," pursued Harry, "a draught is a current of air. Such currents are now passing up the chimney, and simply

owing to that trifling circumstance, we are able to sit here now without being stifled and poisoned."

"Goodness!" ejaculated Mrs. Wilkinson.

"To be sure. The fire, in burning, turns into gases, which are rank poison—carbonic acid, for one; sulphurous acid, for another. Hold your nose over a shovelful of hot cinders if you doubt the fact. The gases produced by the fire expand; they increase in bulk without getting heavier, so much so that they become lighter in proportion than the air, and then they rise, and this rising of hot air is what is meant by heat going upwards. The currents of hot air that go up the chimney in this way have currents of cold air rushing after them to supply their place. When you heat water, currents are formed just as when you heat gas or air. The heated portion of water rises, and some colder water comes down in its place; and these movements of the water keep going on till the whole bulk of it is equally hot throughout."

"Well, now," interrupted Mr. Bagges, "I dare say this is all very true, but how do you prove it?"

"Prove that water is heated by the rising and falling of hot currents? Get a long, slender glass jar. Put a little water, colored with indigo, or any thing you like, into the bottom of it. Pour clear water upon the colored, gently, so as not to mix the two, and yet nearly to fill the jar. Float a little spirit of wine on the top of the water, and set fire to it. Let it blaze away as long as you like; the colored water will remain steady at the bottom of the jar. But hold the flame of a spirit-lamp under the jar, and the colored water will rise and mix with the clear, in a very little time longer than it would take you to say Harry Wilkinson."

"Ah! So the water gets colored throughout for the same reason that it gets heated throughout," Mr. Bagges observed, "and when it gets thoroughly hot—what then?"

"Then it boils. And what is boiling?"

"Bubbling," suggested the young philosopher's mamma.

"Yes; but ginger-beer bubbles," said Harry, "but you wouldn't exactly call that boiling. Boiling is the escaping of steam. That causes the bubbling; so the bubbling of water over the fire is only the sign that the water boils. But what occasions the escape of the steam?"

"The heat, of course—the—what is the right word?—the caloric," answered Mr. Bagges.

"True; but what heat? Why, the excess of heat over two hundred and twelve degrees—taking that as the average boiling point of water. You can heat water up to that point, and it remains water; but every degree of heat you cause to pass into it above that, turns a quantity of the water into steam; and flies off in the steam, unless the steam is hindered from escaping by extraordinary pressure. Blow the fire under that kettle as much as you will, and you will make the water boil faster, but you won't make it a bit hotter than two hundred and twelve degrees."

"Well, to be sure!" Mrs. Wilkinson exclaimed.

"If water," continued Harry, "could keep on getting hotter and hotter above the boiling point, why, we might have our potatoes charred in the pot, or our mutton boiled to a cinder. When water is confined in a strong vessel—and strong it must be to prevent a tremendous blow-up—confined, I say, so that no steam can escape, it may be heated almost red-hot; and there is a vessel made for heating water under pressure, called Papin's Digestor, which will digest almost any thing."

"What an enviable apparatus!" exclaimed Mr. Bagges.

"Well," resumed Harry; "so the boiling point of water depends on the degree of force which the air or what not is pressing on its surface with. The higher the spot on which you boil your water, the lower the point it boils at. Therefore, water boiling at the top of a mountain is not so hot as water boiling at the mountain's base. The boiling point of water on the summit of Mont Blanc, is as low as one hundred and eighty-four degrees. So, if water must be at two hundred and twelve degrees, to make good tea, don't choose too high a hill to build a temperance hall on. The heavier, also, the air is, from the quantity of moisture in it, the hotter water becomes before it boils. If the atmosphere were carbonic acid gas, water would get much hotter without boiling than it can under"—

"Present arrangements," interposed Mr. Bagges.

"Consisting of a mixture of nitrogen and oxygen," continued Harry. "Water requires only a very low heat to make it boil in an exhausted receiver, out of which the air has been pumped, so as to leave none to press upon its surface. Owing to boiling depending upon pressure, you can actually make water boil by means of cold."

"What next?" sighed Mrs. Wilkinson.

"You can, indeed. Put a little boiling water in a salad-oil flask; so that the flask may be a quarter full, say. Cork the flask tightly. The boiling stops; and the upper three fourths of the flask are full of vapor. Squirt a jet of ice-cold water upon the flask, above where the water is, and the water below will instantly begin to boil. The reason why, is this. The vapor in the flask presses on the surface of the hot water. The cold condenses the vapor—turns it back to water. That takes off the pressure for the time; and then the hot water directly flies into vapor, and boils, and so on, till it cools down too low to boil any

longer. What reduces the boiling point of water on a hill or a mountain is, that the pressure of the atmosphere decreases as you ascend. A rise of five hundred and thirty feet in height above the level of the sea, makes a difference of one degree; so, give me a kettle of water and a thermometer, and I'll tell you exactly how near the moon we are."

"I shouldn't think one could make good hot mixed punch up in a balloon, now," observed Mr. Bagges, reflectively.

"Then," Harry proceeded, "it requires more heat to make water boil in a glass vessel than it does in a metal one. A metal vessel's inner surface is made up of very small points and dents. Scratching the inside of the glass so as to give it a roughness something like what the metal has, makes the boiling point lower; and a few iron filings thrown into water boiling in glass at two hundred and fourteen degrees, will bring it down to two houndred and twelve. The filings, and the roughness of the glass, are so many more points for the heat to pass into the water from, and form steam, and the water does not cling to them so hard as it clings to a smooth surface. Throw a lot of hay into a pan of hot water, and it makes a quantity of steam rise directly; and I have heard a doctor say that some poor people are in the habit of giving themselves cheap steam-baths by this means."

"A very good thing for rheumatic pains, I should think; certainly a much more rational remedy than patent medicines or Government poison," Mr. Bagges remarked.

"There are some salts," continued Harry, "which, if dissolved in water, will prevent it from boiling till it is heated to two hundred and sixty-four degrees, as if they held the water back from flying into steam. So, then, the boiling of water may be hindered, more or less, by pressure

from without, and attraction from within. The boiling point of water depends on another important fact which the kettle always mentions before it boils, although we don't all of us understand the kettle's language. The singing of the kettle tells us"—

"That the water is going to boil," interrupted mamma.

"Yes, and that water contains air. The singing of the kettle is the noise made by the escape of the air, which is driven off by the heat. The air sticks and hangs in the water, till the heat expands it and makes it rise. Put a glass of water under the receiver of an air-pump, and exhaust the receiver. As you pump, the water begins to bubble, as if it were boiling; but the bubbles are the air contained in the water, being pumped out. The air-bubbles act like wedges between the little invisible drops that make up the whole water. If it were not for them, the water would be a mass which would hold together so hard that it would not go into steam, or boil, till it was heated to two hundred and seventy degrees, as may be proved by boiling some water quite deprived of air. And not only that, but when it did boil, it would boil all at once, and blow up with a tremendous explosion; which would be a still greater inconvenience in boiling a kettle."

"A pretty kettle of fish, indeed!" Mr. Bagges observed.

"So," said Harry, "strictly pure water would not be quite so great a blessing to us as you might think. Of course, you know, uncle, I don't mean to say that there is any advantage in the impurity of such water as the Thames, except when used for the purpose of fertilizing the earth. I am speaking of water so pure as to contain no air. Water of such severe purity would be very unmanageable stuff. No fishes could live in it, for one thing. I have already given you one good reason why it would be unsuitable to our

kettle; and another is, that it would not be good to drink. Then water, as we find it in the world, has a very useful and accommodating disposition to find its own level. Pump all the air out of water, however, and it loses this obliging character in a great measure. Suppose I take a bent glass tube, and fill one arm of it with airless water. Then I turn the tube mouth upwards, and if the water were common water, it would instantly run from one arm into the other, and stand at the same level in both. But if the water has been exhausted of its air, it remains, most of it, in the one arm, and won't run till I give the table a smart rap, and shake it. So, but for the air contained in water, we could not make the water run up and down hill as we do. If water were deprived of air, London would be almost deprived of water."

"And water," observed Mr. Bagges, "would be robbed of a very valuable property."

"Good again," uncle. "Now, if we could see through the kettle, we should be able to observe the water boiling in it, which is a curious sight when looked into. To examine water boiling, we must boil the water in a glass vessel—a long tube is the best—heated with a spirit lamp. Then first you see the water in motion, and the air bubbles being driven off by the heat. As the water gets hotter, other bubbles appear, rising from the bottom of the tube. They go up for a little way, and then they shrink, and by the time they get to the top of the water, you can hardly distinguish them. These are bubbles of steam, and they get smaller as they rise, because at first the water is colder above than below in proportion to the distance from the flame, and the cold gradually condenses the bubbles. But when the water gets thoroughly hot, the bubbles grow larger and rise quicker, and go of the same size right up

to the top of the water, and there escape—if you choose to let them. And steam was allowed to escape so for many ages, wasn't it uncle, before it was set to work to spin cotton for the world, and take us to America within a fortnight, and whirl us over the ground as the crow flies, and almost at a crow's pace."

"For all which," remarked Mr. Bagges, "we have principally to thank what's his name."

"Watt *was* his name, I believe, uncle. Well; heat turns water into steam, and I dare say that I need not tell you that a quantity of water becoming steam, fills an immense deal more space than it did as mere water. Cold turns the steam back into water, and the water fills the same space as it did before. Water, in swelling into steam and shrinking back into water again, moves, of course, twice, and mighty motions these are, and mighty uses are made of them, I should rather think."

"I believe you, my boy," said Mr. Bagges.

"And now," asked Harry, "have you any idea of what a deal of heat there is in steam?"

"It is hot enough to scald you," answered his mamma, "I know that."

"Yes; and hot enough, too, to cook potatoes. But there is much more heat in it than that comes to. Take a kettle of cold water. See at what degree the thermometer stands in the water. Put the kettle on the fire and observe how long it takes to boil. It will boil at two hundred and twelve degrees; and therefore, during the time it has taken to boil, there has gone into it the difference of heat between two hundred and twelve degrees and the degree it stood at when first put on the fire. Keep up the same strength of fire, so that the heat may continue to go into the water at the same rate. Let the water boil quite

away, and note how long it is in doing so. You can then calculate how much heat has gone into the water while the water has been boiling away. You will find that quantity of heat great enough to have made the water red-hot, if all the water, and all the heat, had remained in the kettle. But the water in your kettle will have continued at two hundred and twelve degrees to the last drop, and all the steam that it has turned into will not have been hotter—according to the thermometer—than two hundred and twelve degrees; whereas a red heat is one thousand degrees. The difference between two hundred and twelve degrees and one thousand degrees is seven hundred and eighty-eight degrees; and what has become of all this heat? Why, it is entirely contained in the steam, though it does not make the steam hotter. It lies hid in the steam, and therefore it is called latent heat. When the steam is condensed, all that latent heat comes out of it, and can be felt, and the quantity of it can be measured by a thermometer. The warmth that issues from steam-pipes used to warm a house, is the latent heat of the steam that escapes as the steam turns back to water."

"Latent heat! latent heat!" repeated Mr. Bagges, scratching his head. "Eh? Now, that latent heat always puzzles me. Latent, lying hid. But how can you hide heat? When the zany in the pantomime hides the red-hot poker in his pocket, he cauterizes his person. How—eh?—how can heat be latent?"

"Why the word heat has two meanings, uncle. In the first place, it means hotness. Hotness cannot be latent, as the clown finds when he pockets the poker. In the second place, heat means a something the nature of which we don't know, which is the cause of hotness, and also the cause of another effect. Whilst it is causing that other effect, it

does not cause hotness. That other effect which heat causes in the instance of steam, is keeping water in the form of steam. The heat that there is in steam, over and above two hundred and twelve degrees, is employed in this way. It is wholly occupied in preserving the water in an expanded state, and can't cause the mercury in the thermometer to expand and rise as well. For the same reason, it could give you no feeling of hotness above what boiling water would—if you had the nerve to test it. Whilst it is making steam continue to be steam, it is latent. When the steam becomes water again, it has no longer that work to do, and is set free. Free heat is what is commonly understood by heat. This is the heat which cooks our victuals, the heat we feel, the heat that singes Mr. Merriman. Latent heat is heat that doesn't warm, singe, or cook, because it is otherwise engaged. If you press gas suddenly into a fluid, the latent heat of the gas is set free. You seem to squeeze it out. Indeed, the same thing happens, if you violently force any substance into a closer form all at once. Every thing appears to have more or less latent heat in it, between its little particles, keeping them at certain distances from each other. Compress the particles within a smaller compass, and a part of the latent heat escapes, as if it were no longer wanted. When a substance in a compressed state expands on a sudden, it draws in heat, on the other hand. When a lady bathes her forehead with eau-de-Cologne to cure a headache, the heat of the head enters the eau-de-Cologne, and becomes latent in it whilst it evaporates. If you make steam under high pressure, you can heat it much above two hundred and twelve degrees. Suppose you let off steam, so compressed and heated, by a wide hole, from the boiler, and put your hand into it as it rushes out"——

"What? Why, you'd scald your hand off!" cried Mr. Bagges.

"No, you wouldn't. The steam rushes out tremendously hot, but it expands instantly so very much, that the heat in it directly becomes latent in a great measure; which cools it down sufficiently to allow you to hold your hand in it without its hurting you. But then you would have to mind where you held your hand; because where the steam began to condense again, it would be boiling hot."

"I had rather take your word for the experiment than try it, young gentleman," Mr. Bagges observed.

"Another very curious thing," proceeded Harry, "in regard to boiling, has been discovered lately. A kettle might be too hot to boil water in. Take a little bar of silver, heated very highly; dip it into water. At first, you have no boiling, and you don't have any at all till the silver has cooled some degrees. Put a drop of water into a platinum dish, heated in the same way, and it will run about without boiling till the heat diminishes; and then it bursts into steam. M. Boutigny, the French chemist, made this discovery. Vapor forms between the drop of water and the red-hot metal, and being a bad conductor of heat, keeps the heat of the metal for some time from flowing into the water. Owing to this, water, and mercury even, may be frozen in a red-hot vessel if the experiment is managed cleverly. A little more than a couple of centuries ago, this would have been thought witchcraft."

"And the philosopher," added Mr. Bagges, would have been fried instead of his water-drop. Let me see—eh?—what do they call this singular state of water?"

"The spheroidal state," answered Harry. "However, that is a state that water does not get into in a kettle, because kettles are not allowed to become red-hot except

when they are put carelessly on the fire with no water in them, or suffered to remain there after the water has boiled quite away!"

"Which is ruination to kettles," Mrs. Wilkinson observed.

"Of course it is, mamma, because at a red heat iron begins to unite with oxygen, or to rust. Another thing that injures kettles is the fur that collects in them. All water in common use contains more or less of earthy and other salts. In boiling, these things separate from the water, and gradually form a fur or crust inside the kettle or boiler."

"And a nice job it is to get rid of it," said his mamma.

"Well; chemistry has lessened that difficulty," replied Harry. "The fur is mostly carbonate of lime. In that case, all you have to do is to boil some sal-ammoniac—otherwise muriate, or more properly hydrochlorate of ammonia—in the furred vessel. The hydrochloric acid unites with the lime, and the carbonic acid goes to the ammonia. Both the compounds formed in this way dissolve and wash away; and so you may clean the foulest boiler or kettle. This is a rather important discovery; for the effect of fur in a kettle is to oppose the passage of heat, and therefore to occasion the more fuel to be required to boil water in it, which is a serious waste and expense when you have a large steam-boiler to deal with. Dr. Faraday mentions the case of a Government steamer that went to Trieste, and during the voyage had so much fur formed in her boiler as to oblige all her coal to be consumed, and then the engineers were forced to burn spars, rigging, bulkheads, and even chopped cables, and to use up every shaving of spare timber in the ship. Soot underneath the kettle, as well as fur inside it, is a hindrance to boiling, as it is a bad conductor;

and that is the reason why one can bear to hold a kettle of hot water, which is very sooty on its under surface, on the flat of the hand. So a black kettle doesn't give out its heat readily to what touches it, and so far it is good to keep water hot; but it gets rid of heat in another way; as I dare say you know, uncle."

"Eh?" said Mr. Bagges, "why, what?—no—I did know something about it the other day—but I've such a memory! and—eh?—no—I've quite forgotten it."

"By radiation, you know. All warm bodies are constantly giving off rays of heat, as shining ones are giving off rays of light, although the heat-rays are invisible."

"How do we know that?" asked Mr. Bagges.

"Get a couple of concave mirrors—a sort of copper basins, polished inside. Stand them face to face, some yards apart. Put a hot iron ball—not red hot—in the focus of one mirror. Put a bit of phosphorus in the focus of the other. The phosphorus will take fire; though without the mirrors you might place it much nearer the hot iron, and yet it would not burn. So we know that there are rays of heat, because we can reflect them as we can rays of light. Some things radiate better than others. Those that have bright metal surfaces radiate worst, though such are what are used for reflectors. If their surfaces are blackened or roughened, they radiate better. A bright kettle gives off fewer rays of heat than a black one, and so far, is better to keep water hot in. But then, on the other hand, it yields more heat to the air, or the hob or hearth that it stands upon—if colder than itself. The bright kettle gives off heat in one way and the black in another, I don't know at what comparative rate exactly."

"Six of one and half-a-dozen of the other," Mr. Bagges suggested.

"Now look at the wonderful relations of the kettle, uncle!"

"Relations?—Eh?—what the pot and the saucepan?" said Mr. Bagges.

"Oh, Oh, uncle! No; its relations to the pressure of the atmosphere and every cause that affects it—to the conveyance, and conduction and radiation of heat—to latent heat or caloric, to the properties of water, to chemical decomposition—and to steam and its astonishing marvels, present and to come!"

"Well," said Mr. Bagges, it is wonderful; and the kettle certainly is very respectably connected. Eh? And I hope to profit by the subject of our conversation; and so, I say, pour me out a cup of tea."

The Magic Crystal.

IT is the fashion—especially among people of fashion—to point with pity to a tale of modern witchcraft, to an advertisement of a child's caul, or to the *bonâ fide* certificates of cases from the takers of quack medicines, and to deplore the ignorance of their inferiors. Delusions, however, of the grossest kind are not confined to the illiterate. A cloud of dupes have ever floated about in the higher regions of society; while it is quite a mistake to suppose that the refinements and discoveries of the nineteenth century have dispersed them. The reign of Queen Victoria, like that of Elizabeth and of Anne, has its Dr. Dees, and Lillys, and Partridges, who are as successful as their precursors in gaining proselytes who can pay handsomely. Damsel of high degree, fresh from boarding-school, with her head more full of sympathy for the heroes and heroines of fashionable novels, and ideas more fixed upon love affairs than on any legitimate studies, can easily find out, through mysteriously worded advertisements in the Sunday papers, or through the ready agency of friends who have already become victims to the "science" of astrology and magic, the

whereabouts of these awful and wonderful beings. There are a number of styles and classes of them, all varying in appearance and mode of operations. There are the old women, who, consoled by the glories of their art, repine not at inhabiting comfortless garrets in the purlieus of the New Cut, Lambeth; and hiding their vocation under the mask of having staylaces or infallible cornplasters to sell, receive more visitors from the fashionable cream of Belgravia than from the dross of Bermondsey. Disguises are sometimes resorted to, and parties of titled ladies have been known to meet, and put on the habiliments of "charwomen," and to pass themselves off as dressmakers. There is an old man with unshaven beard and seldom washed face, who lives in more comfortable style with his son, in Southwark (the favored district of the conjurers), who, to keep up appearances, has "Engineer," hugely engraved on a great brass plate over the door; who casts nativities, and foretells events of the future, for three or five shillings, as the appearance of the visitor will warrant him in demanding; receives all his votaries sitting at a terribly littered table of dirty papers, with a well-smoked clay pipe beside him.—Passing to a higher grade, the "agent," or arranger of matters, legal, pecuniary, or domestic, only practises the black art for the love he bears it and to oblige his friends, but never refuses a few shillings fee, out of respect to the interest of the science. Nearly all *his* customers are people of title.

But the most successful of these astrological conjurers is the possessor of a certain Magic Crystal; to the surface of which he pretends to call up angels, constellations, and heroes of the past, with all of whom familiar conversations are held, to the amazement of large parties of fashionables assembled in elegant saloons. Were the rank

and numbers of the persons weak enough to be deluded by such exhibitions to be divulged, the revelation would not be credited by the sane part of the world. The Magic Crystal, during the London season last past, became the wonder, the talk, and—with not a few—the belief. Some account of the antecedents of Magic Crystals will not be without interest:—

Those who have passed any time in India, will have become acquainted with the use made of round masses of rough hewn polished glass, designated Divining Crystals, and bear testimony to the superstitious awe with which they are regarded. The High Priest of the Buddhist and Hindoo Temples in former times, when arrayed in the consecrated garments for the festivals, had one of these round knobs—about the size of a large pendant drop of a chandelier, or the top of a beadle's staff—suspended from his neck by a chain of great value, and of dazzling brilliancy. It was through the agency of this crystal that he was supposed to hold communion with the spirit or spirits to whom he and his followers accorded devotion and made intercessions; and the glass, acting as did the famed oracle at Delphi, gave orders and commands, and settled all great questions that might be submitted to its spiritual master. The priest, although he might be a pattern of purity, and the quintessence of all that was good, having, however, the sin of being in years, and not able perhaps to keep from the spirit inhabiting the crystal all the transactions of his youth, could not hold direct communication with it; to arrange this, a certain number of boys (and sometimes, in some of the temples, young damsels) were retained, who, never having mixed with the world, could not be supposed to be in any way contaminated by its vices. These alone were said to be capable of beholding the spirit when he

chose to make his appearance in the divining glass, and interpreting to and fro the questions put, and answers received. Although it was not every boy or "seer" to whom was permitted the gift of spiritual vision, yet in later times, when divining crystals multiplied, little ragged boys would run after the passers in the streets and offer to see—anything that might be required of them—for an anna, or even a cake or sweetmeat. In Egypt, the Divining Glass is superseded by putting a blot of thick black fluid into the palm of a boy's hand, and commanding him to see various people and things, of which practice Lane, in his "Modern Egyptians," gives some curious disclosures.

Divining mirrors were not confined to the East. Dr. Dee was the first English impostor who vaunted the possession of one of these priceless treasures. He had for the "seer" one Kelley, an Irishman, and to this, doubtless, was attributable the impression that prevailed among the astrologers and amateur spirit-hunters, that when the spirits condescended to speak, they always gave speech with a very strong spice o' the brogue. This "beryl," as it is called, was preserved amongst the Strawberry Hill curiosities, and fell under the hammer of George Robins at the memorable sale. It proved to be a globe of cannel-coal. In Aubrey's Miscellany there is an engraving of another larger crystal, and there is with it (as also in other works produced about the same period) many wonderful stories; yet notwithstanding the magic capabilities of these mirrors, they went out of fashion until the beginning of the present year.

This revival and its consequences is like a page out of a silly romance. The story, if told by a disinterested historian, would require authentication as belonging to the year 1850. We therefore turn, by way of voucher, to a

publication—which on any other occasion, it would require an apology to our readers for quoting—called "Zadkiel's Almanac for 1851." At page 46 of that farrago, after referring to the existence of Magic Crystals at the present day, the writer says:—"One of large size (four inches in diameter) was a few years since brought over by a friend of Lady Blessington; after the sale of whose effects it recently fell into the hands of a friend of mine; and, having tested its powers, I have resolved on giving my readers an account of this wonderful mode of communicating with the spirits of the dead. The crystal is spherical, and has been turned from a large mass of pure rock crystal. I have been shown some few others, but, with the exception of one shown me by Lord S.,* they are all much smaller. These are said to be consecrated to the Angels of the planets, and are, therefore, far less powerful than Lady Blessington's Crystal, which being consecrated to the Archangel of the Sun, Michael, may be consulted during four hours each day, whereas the others can generally be used only for a very brief space of time; nor can very potent spirits be called into them or made to render themselves visible. It will be seen that in this large crystal spirits appeared without being 'called,' as is usual; and that they give us most *important information of the actual existence of the soul after death, and of the state in which it exists and will exist until the Judgment.* They confirm all the great truths of Revelation and of the Christian Religion; and they tell us that we should take the Holy Scriptures as our guide alone. and not rely on the *dogmas* of any Church, or heed the opinions of any human teachers. They aver that Prayer and Praise are essential to salvation, but that forms

* For which his lordship, we are told, paid Zadkiel's friend £50.

and ceremonies are not; and they say that ALL the spirits, and even the highest Angels in Paradise, do pray to God, who is always pleased with *earnest* prayer."

It is this sort of blasphemy which, unhappily, makes the most dupes, for weak-minded people mistake it for religion. The mode in which this delusion was "worked," we learn from a friend who accidentally became acquainted with the imposture. He says:—

"The first intimation that we received of the revival of this notable practice of divination was about six months ago, when we were casually informed that the son of a distinguished officer of the Royal Navy was, at that time, frequently engaged in developing before a few privileged friends, the extraordinary faculty of being able to hold intercourse with the world of spirits. It was added that the revelations made through the medium of this youth were of so wonderful a nature, and carried such conviction to the minds of those who listened, that they were declared to be the result of more than human power.

"We made inquiry as to the nature of these revelations, and found—as we expected—that they were precisely what might be expected, not from a supernatural intelligence, but from a naval young gentleman who carried to the ceremony a fair proportion of that readiness of belief in supernatural agency which is, more or less, characteristic of all sailors. On the subject in general these gallant officers were imaginative enough, but their specific yearnings—we are forced to admit—did not display any very lofty range. Their questions, instead of turning on

"'Fate, foreknowledge, and free-will.'

were limited to inquiries as to the personal appearance of some of our distinguished naval Commanders, and the spirit

who communicated his replies, through the interposition of the son of a Captain in the Royal Navy, must have been somewhat of the chillest capacity if he could not have satisfied the ingenuous interlocutor. One specimen of this sort may serve for a dozen.

"'Ask him,' said Lord ——, for such was the rank of the querist, 'ask him to describe Lord Nelson!'

"And, accordingly, the spirit, with an accuracy which was quite astonishing—considering that no portrait, bust, or statue of Nelson is known to exist—gave a full, true, and particular account of England's hero, describing him as a very thin man, in a cocked-hat, with only one eye, one arm, &c.; and the truth of this description was declared to be something truly marvellous.

"What the spirit of Lord Nelson said we were not informed, but we have no great difficulty in believing that it was to the effect that 'England expects every man to do his duty,' if, indeed, those memorable words were not actually used. Something more he might have added of an equally astonishing nature, for we have since discovered that there is a formula in these matters. Whatever it was, his hearers were perfectly satisfied, and the fame of this apparition soon got bruited abroad amongst the relations and friends of the noble and gallant lord already adverted to.

"Another boy, also the son of a naval officer, about thirteen years of age, was a skilful interpreter; and even if he had not been an agent between two worlds, must still have shone forth as something remarkable, for one young lady, the daughter of a dignitary in the Church, declared that 'in her conversation with him, upon *metaphysical subjects*, she had been particularly struck by the depth and clearness of his reasoning!' The youthful agent had, cer-

tainly, the advantage over his principals in this respect, their answers being mostly delivered in the hazy manner which usually characterizes communications of an oracular nature.

"There was, however, on the occasion of a *matinée* at the retired naval officer's, who was and is, the Arch-Priest of this mystery, one Spirit who spoke plainly enough, but whose attributes and revelations were at once so comic and appalling, that we are almost afraid to transcribe them; still, for the benefit of our readers, we will venture:—

"A demand was made that the spirit of a deceased brother of one of the querists should be summoned to appear.

"The lieutenant's son averted his face, and bent over the crystal.

"Presently he said, 'I see him—he has red, curly hair, and stoops a good deal. I can't exactly see his features, but I think he squints.'

"This account of her late brother's personal appearance, though not very flattering, satisfied the lady as far as it went; but being, like Macbeth—

"'——— bent to know,
By the worst means, the worst,'

she required further proof of her relative's identity.

"There was a pause for a minute or two, and then the Spirit-seer spoke again:

"'He has got a scroll in his hand, which he unfolds; there is this inscription on it, *in letters of fire*:

"'I AM TOM!!!'

We are assured that this sublime revelation was received with a degree of solemn awe, which caused our

informant to shake with suppressed throes of well-bred laughter.

"Besides the particular cases of 'Tom' and 'Lord Nelson,' others, not a wit less marvellous, have been described, and with perfect good faith on the part of the narrators, who could not be reasoned out of their absurdity, and who insisted, moreover, that there could be no deception in the matter, on account of the means employed, and the evident sincerity of the *employés!* These means, they said, required that the person who looked into the crystal should be perfectly *pure;* that is to say, a child free from sin (and by no means given to lying, as sometimes happens with the best of children), and that the form of adjuration used was, '*In nomine Domini*,' &c.; Latin being, as is well known, the language which spirits of all denominations, 'red, black, and gray,' are most accustomed to. When interrogated after this fashion, the spirit, if evil, fled away, howling (inaudibly); if good, it came, when called, unless particularly engaged *in the Sun;* for it appears that it is to that planet almost all spirits go when their term of purgatory is over."

Thus far we are lighted on our amusing way by private information; but for more evidence of the balderdash by which educated persons are capable of being deluded, we must revert to the Almanac. According to this veracious record, the first spirit who favored Zadkiel with a visit (it was on the 29th of January last) was Orion, of whom such frequent mention is made in the fathers. He is described as "a TALL man, with a helmet on, and in armor; a bear on its hind legs near him! He is fierce-looking, but has a pleasant smile."

Zadkiel indulges the readers of his Almanac with woodcuts of the various spirits as they are said to have appeared

in the Crystal. They were drawn by one of the seers—a young gentleman having a knack with the pencil. The bear "on his hind legs" does not appear; but Orion himself is, in the guise of a knight, precisely like those theatrical heroes dear to the eyes of youth, and sold at "a penny plain, and twopence colored." What renders this portrait quite authentic, is a sentence in a letter which our friend showed us, from the author of the Almanac to an old retired officer, in which he speaks of the young seer and draughtsman as a recreant, and denounces him for having owned that what he had seen in the glass was—nothing. That the portraits he took, the visions he declared he saw, the answers he pretended he heard from the glass, were simply of his own invention. That in short he had perpetrated an egregious hoax. *After* the date of the letter in which this is dolorously communicated, the young artist's drawings are published in the Almanac as authentic likenesses of what appeared in the extraordinary glass of spirits.

The substance of Orion's communication is as follows, commencing with the caution that what he tells is not to be published "for the first half of this year," that is to say, till the Almanac is ready. All his communications are evidently copyright.

He says that the Crystal in which he appears was made in the year 657 B. C.; that any questions may be asked, "except wicked ones;" that the querist "cannot always be told;" and that he comes "from the atmosphere." Being out of breath with talking—though he says little besides the above—Orion has recourse to the expedient of "*letters of fire*," which, observes Zadkiel, in a note, "appear *written* in various ways in the Crystal; sometimes on flags, which the Spirits hold up; but sometimes they are *in print*." In

these letters of fire, Orion thus counsels the querist: "Be merry. Quarrel not. Keep your temper, and your children, too. You are a good man, but try to be better. I am wanted. Let me go."

Besides Orion, there is a spirit whom we never had the advantage of hearing of before—his name is GEGO. He is not quite so clever as Orion, or the Egyptian magicians. However we learn from him that in the Preadamite era the world did *not* go round the Sun, which is something worth knowing, and would be satisfactory information for Dr. Cullen. He also says, that "The Babylon mentioned in the Revelations did not allude to Rome but to London."

Without troubling Orion or Gego any further, we turn to a few deceased celebrities who were at different times summoned into the Crystal, and hear what they have to tell us.

Milton relates that the idea of "Paradise Lost" was suggested to him in a dream, by his guardian angel. Homer was born in Athens, and knows Virgil. Tacitus, who is eminently modest, prefers Cæsar's account of the Britons to his own, and says that the Druids were "stupid fellows in general." Sir Isaac Newton says, that "Electricity is *partly* the cause of the moon's motions," and that "the nature of light will be discovered, but not for a long time."

The following specimens of colloquies heard by large parties of amazed, titled, and believing listeners, are copied from the Almanac literatim:—

"Are you Pharaoh, that was King of Egypt?—Yes. Where do you dwell now?—In Jupiter. How long have you been there?—About thirty years. Where did you dwell till then?—In the Atmosphere, and was undergoing punishment till then. Were you King of Egypt when Moses was there?—Yes, *and Aaron too.* Did you build

the Pyramids?—*Some.* Were any built before your time?—Yes. Do you know how long the first was built before Christ?—About three hundred years after Adam; it was building then. Do you mean that it was built before the flood?—No, it was not finished; the flood destroyed them. What was the principal object of them?—To hold the Kings of Egypt. Were there Kings of Egypt so soon after the creation?—Yes; that was the first country Kings were in. *Were* you drowned in the Red Sea?—*Yes.*"

"On a certain Sunday Alexander the Great appeared—on horseback—in armor; the horse also in armor, &c. He is undergoing his punishment, but looks to be released next Sunday. Deeply regrets killing Clitus, and all the murders he perpetrated. Has seen his father once only; not allowed intercourse with any spirit till after next Sunday. Amuses himself in fighting his battles over again."

In another Crystal dialogue, Emmanuel Swedenborg objects to capital punishments, and also to paying tithes to clergymen. He volunteers information about Sir John Franklin, which Zadkiel says he should like to see "for his wife's sake," and not at all with any hope of reward from the Admiralty!

"What do you wish?" asks Swedenborg. What is the best way to communicate with him? replies Zadkiel. "*By the natives; they speak to him sometimes.*"—Will he be home next summer? "No."—Why? "*Because he cannot help himself;* he is stopped by ice, but his heart does not fail him? he wants to explore."—How will he do for *provisions?* "He will find *bears*, *dogs*, and *wolves*."—Will he find the passage? "No; there is a continent there."—But there is also a passage? "There is one, but he will not find it." What latitude does it lie in chiefly? "I do not know; *good bye.*"

It appears odd that Swedenborg, who knew so much, did not know this; but we learn in another place, that "Spirits do not *well* understand about latitude and longitude." Orion seems to have been a trifle more explicit, for he places the expedition "to the north-east of Melville Island," where certain young gentlemen of Zadkiel's acquaintance had just killed a bear. The voyagers, we are further told, get "a *kind* of wolves" (to eat) and "a *kind* of *turf* full of gas" (perhaps to drink).

According to the seer, Socrates, for he has rather a French taste in dress, came forward in this guise: "A tall, middle-aged man, rather bald, *dressed with striped coarse trowsers, very loose at the top and tight near the feet; a kind of frock, open in the front, and without sleeves.*" He is generally employed in "singing praises," but he was not quite happy. Like no other Spirits, he is very polite, for when going, he said, "Many happy returns of your Birthday." ("It was," says Zadkiel, "the seer's thirteenth birthday.") It was this young gentleman who proved a traitor, and proclaimed that he had imposed on Zadkiel and all his friends.

It may be objected that the miserable stuff which we have quoted must prove its own antidote; but, when we find that its author boasts of the scores of thousands which he has sold of his vapid publication, and sets forth the example set by the higher classes with the view of selling more—an example which always finds a certain number of imitators—we hold, that the pernicious tendency of the publication calls for exposure. Observe the direct effect of the following paragraph, with which Zadkiel sums up the nature of the success he has experienced in the course of a few months—the italics are his own:—

"In concluding this account, I may remark that *numerous children* have seen these visions, some of them the sons and daughters of per-

sons of high rank; and that *several* adults have also seen visions, one of them a lady of title, another a member of one of the highest families in England. It will be easily seen that delicacy prevents my publicly naming individuals; but I can assure my readers that *above one hundred of the nobility*, and several hundreds of other highly respectable ladies and gentlemen, have examined this wonderful phenomenon, and have expressed the highest gratification and astonishment."

What is likely to be the future career of "*children*" who have been trained to a system of imposture? And what may not be the influence upon persons of weak minds, of the opinions expressed by "hundreds of highly respectable ladies and gentlemen," in a community who hold "respectability" in so much reverence? If "above one hundred of the nobility" are not likely to find imitation, amongst their dependents alone, why do we see daily the shrewdest, money-making tradesmen of London advertising the "nobility" as encouragers of their professions, or purchasers of their wares? The answer is obvious.

The Private History of the Palace of Glass.

ON New Year's Day, in the year 1837, a traveller was proceeding, in a native boat, on a difficult exploration up the river Berbice in Demerara, when, on arriving at a point where the river expanded and formed a currentless basin, his attention was attracted to the southern margin of the lake by an extraordinary object. He caused his crew to paddle quickly towards it. The nearer he approached, the higher his curiosity was raised. Though an accomplished botanist, and especially familiar with the Flora of South America, he had never seen any thing like it before. It was a Titanic water-plant, in size and shape unlike any other known plant. "I felt as a botanist," says Sir Robert Schomburgk, "and felt myself rewarded! All calamities were forgotten. A gigantic leaf, from five to six feet in diameter, salver-shaped, with a broad rim, of a light green above, and a vivid crimson below, rested upon the water! Quite in character with the wonderful leaf was the luxuriant flower, consisting of an immense number of petals, passing in alternate tints from pure white to rose and pink"

[and, in some instances, measuring fifteen inches across]. "The smooth water was covered with blossoms, and, as I rowed from one to the other, I always observed something new to admire."

Such flowers Polyphemus must have gathered for Galatea's nosegay; but Sir Robert Schomburgk, not content with mere flowers, dug up whole plants; and sent first them, and afterwards seeds, to England, where the magnificent lily was named the "Victoria Regia." After some unsuccessful attempts, the task of forcing it to blossom in an artificial climate, was confined to Mr. Paxton, the celebrated horticulturist of the Duke of Devonshire's celebrated Chatsworth.

Mr. Paxton—a man of high scientific attainments—is not a mere academic *savant*. *His* Alma Mater is nature. When the Victoria Regia was to be flowered, Mr. Paxton determined to imitate Nature so closely as to make that innocent offspring of the Great Mother fancy itself back again in the broad waters and under the burning heats of British Guiana. He deceived the roots by imbedding them in a hillock of burned loam and peat; he deluded the great lubberly leaves by letting them float in a tank, to which he communicated, by means of a little wheel, the gentle ripple of their own tranquil river; and he coaxed the flower into bloom by manufacturing a Berbician climate in a tiny South America, under a glass case.

With that glass case our history properly commences. In imitation of a philosophic French Cook, who began a chapter on stewed apples with an essay on the Creation, we have thought it wise to start with the parentage and gestation, before proceeding to the birth and development of the Great Giant in Hyde Park; for by a curious apposition, the first parent of the most extensive building in

Europe was the largest known floral structure in the world. Although, co-relatively, they differ as widely as the popular disparity of St. Paul's and a China orange; yet the one proceeded from the other, as consequently as oaks grow from acorns.

Mr. Paxton had already effected many improvements in horticultural buildings; the workmanship of which has always been unnecessarily massive. With the conviction that glass houses are not Egyptian tombs, built for darkness and eternity, he set about making them lighter than of old, both as regards actinism and architecture. He discarded as much as practicable all ponderous and opake materials. He pared away all clumsy sash-bars, whose broad shadows robbed plants of the sun's light and heat during the best parts of the day; he abolished dirty and leaking overlaps, by using large panes, and inserting them in wooden grooves, rendered water-tight by a sparing use of putty. Lastly, finding that into the ordinary sloping roof the sunbeams enter, at an indirect and unprofitable angle, Mr. Paxton invented a horizontal glazing composed of angular ridges, the glass presenting itself to the sun's rays so as to admit them to the plants in a straight line at almost any time of day; but especially early and late.

In a green-house constructed with some of these improvements, and acclimated as we have already explained, a Victoria Regia was planted on the tenth of August, 1849. So well had every thing been prepared for its reception, that it flourished as vigorously as if it had been restored to its native soil and climate. Its growth and development were astonishingly rapid; for on the ninth of November a flower was produced, a yard in circumference! In little more than a month after, the first seeds ripened, some of them were tilled, and on the sixteenth of February succeeding,

young plants made their appearance. Success, however, brought a fresh embarrassment. The extraordinary lily obeyed Nature's law of development with such unexpected rapidity, that it outgrew the dimensions of its home in little more than a month. It therefore set Mr. Paxton a problem to solve; the formula of which was something like this:—Given, an exotic growing in a green-house, at the rate of six hundred and forty-seven square inches of circumference per diem: required, in three months, a new house of dimensions proper for its maturity?

Mr. Paxton went to work; and, combining all his improvements in constructing green-houses, with his special inventions for maturing the Victoria Regia, he very soon produced the "Q. E. D.," in the shape of a novel and elegant conservatory, sixty feet long by forty broad. This building became the immediate precursor of the gigantic structure in Hyde Park,—*why* necessitates a short explanation.

Among the many desiderata required for every kind of habitation—whether it be designed for plants or princes, for a pine-house or a palace, for the Victoria Regia, or for the enormous glass case under which to collect the products of All Nations,—the most imperative conditions, after stability, are, perfect facilities for drainage and for ventilation; another, though scarcely subordinate proviso, is economy. The man who can construct houses which shall repel external humidity, and allow of a constant and gentle change of atmosphere at any controllable temperature, and at the lowest cost consistent with durability, is, of course, the prince of builders. Now, in order to be economical, he must necessarily so manage, that each of his materials shall perform as many different functions as it is possible for it to perform effectually. If he build walls which answer for

warmth and strength only, if he add gutters for drainage, and if he call in Dr. Reid for ventilation, he may, probably, build a good habitation, but it will certainly be a costly, perhaps a clumsy one; and will turn out a very long job. Mr. Paxton, when he set about the new Victoria Regia house—guided by previous study and experience, and forced into new expedients by the peculiarities of the extraordinary tenant he was building for—had become a better economist. The result is, as shown in his latest effort—the great Building—that his walls and foundations are not simply walls and foundations, but ventilators and drains as well. His roofs are not simply roofs; but, besides being the most extensive of known sky-lights are light, and heat adjusters. His sash-bars do not only hold the glass together, but are self-supporting, and his rafters form perfect drains for both sides of the glass,—for draining off internal, as well as external moisture, whilst the tops of the girders are conduits also. His floors are dust-traps, and aid in ventilation. Lastly, his whole building is, while in course of construction, its own scaffolding. Thus he saves time as well as money.

The Victoria Regia house, which combines most of the advantages above detailed, was finished in several weeks' less time, and cost considerably less money, than the slenderest old fashioned conservatory that has ever been built.

While Mr. Paxton was busy with his novel and model garden-house, a hot war was raging in London about a site for the new building for exhibiting specimens of the Art and Industry of all nations in 1851. Mr. Paxton is a reader of the "Times," and perused with sympathizing interest its fiercely-urged objections against the invasion of Hyde Park by armies of excavators, bricklayers, blacksmiths, and timber-fellers. The picture daily drawn of the

tearing up of fashionable roads by the carting of more bricks and mortar (for, mark, a *temporary* edifice) than the eternal pyramids of Ghizeh consist of; the cutting down from one side of Rotten Row of its most cherished ornaments, the trees; the uncertainty of miles of brickwork being put together in time for sufficient consolidation to bear the weight of the tremendous iron dome designed to rest upon it; the impossibility of the entire mass of mortar and plaster duly drying:—All this, though occasionally overdrawn and exaggerated, presented a black perspective, which the means and appliances of the Victoria Regia conservatory would, thought its architect, considerably lighten, or altogether obviate. Every new thunderbolt from the newspaper *Tonans*, strengthened this notion in the projector's mind. All that was wanted, was a great many great lily-houses joined together. A multiplication of hands and of materials could be readily commanded, and no structure could be raised so quickly and so cheaply. The promenaders and neighbors of Hyde Park would be relieved of the incessant "click—click" of bricklayers' trowels, the maddening noise of the blacksmiths' riveting-hammers, and have perfect immunity from the hourly transit of bricks and scaffold poles. The proposed edifice could be constructed at Birmingham, at Dudley, and at Thames Bank, "brought home" to Hyde Park ready-made, and put up like a bedstead. As to the trees: for a couple of hundred pounds Mr. Paxton would transplant them, and bring them back again at the end of the Industrial Fair without injuring a single twig. And here we may remark, in passing, that, according to Horace Walpole, Mr. Paxton is half a century before his time in his huge transplanting operations. In August, 1748, the Twickenham Prophet wrote to his Cousin Conway, as a piece of extra-

vagant fun—"I lament living in so barbarous an age, when we are come to so little perfection in gardening. I am persuaded that, a hundred and fifty years hence, it will be as common to remove oaks a hundred and fifty years old, as it is now to transplant tulip roots."

However, Mr. Paxton *could* do without moving the venerable wood "on the shortest notice" (as if it had been converted into household furniture before its time). If the Park authorities preferred, he would clap the trees, all standing, under his great glass case.

But alas! feasible as the plan appeared, it was not to be thought of. The fiat of the Building Committee had gone forth. The competition of architectural skill invited by the authorities had not produced one available design. The first exhibition of the Industry of the Architects of all Nations had been pronounced a failure; and the fact of the Building Committee having invited tenders for the construction of a design of its own, shut out fresh competitors.

One day, however—it was Friday the fourteenth of June—Mr. Paxton happened to be in the House of Commons conversing on this subject with Mr. Ellis, a member of it, who accompanied him to the Board of Trade to see what could be done. Then, nothing could be done; for Mr. Paxton (who is one of the busiest men in England—whose very leisure would kill a man of fashion with its hard work) was off immediately to keep a special appointment at the tubular bridge over the Menai. After his journey, the next morning, the conversation with his friend, the M. P., was clenched by another and more than usually powerful burst of thunder in that day's issue from Blackfriars. His mind was made up; "and," said the Duke of Devonshire, at a recent public meeting at Bakewell, "I never knew Mr. Paxton resolve to undertake what he did not fully accomplish." To have en-

gagements for every day in the week in different parts of England and Ireland, together with the management of the estates at Chatsworth, did not much matter; there was still time to be found for concocting the plans and details of a few square acres of building. Tuesday morning, the eighteenth of June, found Mr. Paxton at Derby, seated—as Chairman of the Works and Ways Committee of the Midland Railway—to try an offending pointsman. This was the first *leisure* moment he had been able to secure since he resolved to plan the great building. At the end of the table stood the culprit; and, upon it, before the Chairman, was invitingly spread a virgin sheet of blotting-paper. As each witness delivered his evidence, Mr. Paxton appeared to be taking notes with uncommon assiduity; and when the case closed, one of his colleagues turned specially to him, saying,

"As you seem to have noted down the whole of the evidence, we will take the decision from you."

"The truth is," whispered the Chairman, "I know all about this affair already, having accidentally learned every particular last night. *This*," he continued, holding up the paper, "is not a draft of the pointsman's case, but a design for the Great Industrial Building to be erected in Hyde Park."

The pointsman was let off with a fine, and before evening the blotting-paper plan had found its way into Mr. Paxton's office at Chatsworth. By the help of that gentleman's ordinary assistants, elevations, sections, working details, and specifications were completed in ten days.

When he made his next appearance at the Derby station, at the end of that time, Mr. Paxton had the complete plans under his arm. There was not a minute to spare, for the train was on the point of starting, and the Royal Commissioners met the next morning; so, taking his dinner in his

pocket, he entered a carriage. Here, to his extreme delight, he found one of the greatest and most influential engineers of the day—a member, moreover, of the Royal Commission.—who was going to London by the same train.

"This is extraordinarily lucky!" he exclaimed; "for I want you to look over a few plans and a specification of mine."

Accordingly the plans were unrolled. "There they are," said the impromptu architect; "look them over, and see if they will do for the great Building for eighteen hundred and fifty-one!"

"For what?" asked the engineer, looking at his friend with the serio-comic surprise of incredulity.

"I am serious."

"But you are too late; the whole thing is settled and decided."

"Well, just see what you think of them. I am very hungry, and if you will run them over while I eat my dinner, I'll not speak a word."

"Neither will I disturb *you*, for I *must* light a cigar;" and in spite of every regulation in that case made and provided, the engineer began to smoke.

There was a dead taciturnity; the Royal Commissioner went over the plans slowly and carefully; their originator narrowly watching their effect on his mind. It was an anxious moment for the one; for upon the opinion of the other no little depended. At first there was not much to augur from. The drawings were scanned with no more than business-like attention. No word of commendation was uttered; no sign of pleasure or surprise appeared. The smoke rose in regular wreathes; but presently, they grew fainter and more intermittent, and by-and-by the cigar went out; yet the suction was continued as vigorously as ever. The projector's

hopes rose: his friend's attention was evidently drawn into a vortex, for he went on during twenty minutes puffing away at the effete weed, quite unconscious that it was extinguished! At length, gathering the unrolled papers in a bundle, he threw them into the opposite seat, exclaiming—"Wonderful!—worthy of the magnificence of Chatsworth!—a thousand times better than any thing that has been brought before us! What a pity they were not prepared earlier!"

"Will you lay them before the Royal Commission?"

"I will.' '

The value of this promise and of the favorable expression of opinion which would doubtless accompany its peformance, will be best understood when we divulge to the reader (without we trust any breech of confidence) that the gentleman who made it was Mr. Robert Stephenson.

The next day fills a melancholy page in English history. It was Saturday the twenty-ninth of June. The Royal Commission met, headed by Prince Albert. After the regular business of the board was over, the Prince and Sir Robert Peel retired to one of the bay-windows, and were some time engaged in earnest conversation. Mr. Stephenson's time was precious, for he had an appointment elsewhere. He was, in short, obliged to depart without an opportunity of placing Mr. Paxton's plans before his colleagues and the Prince. He delegated that office, however, to an able hand, Mr. Scott Russell, one of the Secretaries of the Commission.

Both Prince Albert and Sir Robert Peel gave great attention to the drawings, and the Prince signified his wish that Mr. Paxton should wait upon him at Buckingham Palace to explain the details. Sir Robert Peel greatly admired the design for its unity and simplicity; remarking with pleasure, that if it were accepted, it would occasion the first great operation in glass since the introduction of his own

tariff. Alas! this was the latest connected remark which that great statesman was destined to utter. He almost immediately left Westminster Palace on horseback for an airing, was thrown on Constitution Hill, and three days afterwards had ceased to exist.

The Paxton scheme was referred to the Building Committee; which in the regular routine of business, could not entertain it, having rejected all the designs it had invited for competition, and having devised a plan of its own. Nothing daunted, however, Mr. Paxton determined to appeal to a tribunal which (to borrow the tag of most modern comedies) is "never sought in vain;" namely, to the British public! This he did by the aid of the woodcuts and pages of the "London Illustrated News." Never was an appeal more promptly or satisfactorily answered! The practicability, the simplicity, and beauty of the scheme, convinced every member of the many-headed court of appeal of its efficacy.

Meanwhile the projector of the building waited on the projector of the entire exhibition, Prince Albert, on another memorable morning—that of the christening day of Prince Patrick. What passed need not be divulged; but the encouragement vouchsafed, added to the expression of public opinion daily gathering strength, induced Mr. Paxton to decide on procuring a tender to be sent in to the Building Committee for his design. He therefore went straight to Messers. Fox and Henderson, and these gentlemen immediately engaged to prepare a tender. It happened that the Building Committee in their advertisement had invited the candidates for raising *their* edifice, to suggest any improvements in it that may occur to them. This opened a crevice, into which Messrs. Fox and Henderson were able to thrust their tender for Mr. Paxton's plan. Seeing at

once it was, of all other plans, *the* plan—the supreme desideratum—they tendered for it as an "improvement" on the Committee's design.

Here a new and formidable difficulty arose. It was now Saturday, and only a few days more were allowed for receiving tenders. Yet before an approximate estimate of expense could be formed, the great glass manufacturers and iron masters of the north had to be consulted. This happened to be *dies mirabilis* the third, for it was the identical Saturday on which the Sunday postal question had reached its crisis; and there was to be no delivery next day! But in a country of electric telegraphs, and of indomitable energy, time and difficulties are annihilated, and it is not the least of the marvels wrought in connection with the great edifice, that by the aid of railway parcels and the electric telegraph, not only did all the gentlemen summoned out of Warwickshire and Staffordshire appear on Monday morning at Messrs. Fox and Henderson's Office, in Spring Gardens, London, to contribute their several estimates to the tender for the whole; but, within a week, the contractors had prepared every detailed working drawing, and had calculated the cost of every pound of iron, of every inch of wood, and of every pane of glass.

There is no one circumstance in the history of the manufacturing enterprise of the English nation which places in so strong a light as this its boundless resources in materials, to say nothing of the arithmetical skill in computing at what cost, and in how short a time, those materials could be converted to a special purpose. What was done in those few days? Two parties in London, relying on the accuracy and good faith of certain iron-masters, glass-workers in the provinces, and of one master carpenter in London, bound themselves for a certain sum of money, and in the course

of some four months, to cover eighteen acres of ground, with a building upwards of a third of a mile long (1851 feet —the exact date of the year), and some four hundred and fifty feet broad. In order to do this the glass-maker promised to supply in the required time, nine hundred thousand square feet of glass (weighing more than four hundred tons) in separate panes, and these the largest that ever were made of sheet glass; each being forty-nine inches long. The iron-master passed his word in like manner to cast in due time three thousand three hundred iron columns, varying from fourteen and a half feet to twenty feet in length; thirty-four *miles* of guttering tube, to join every individual column together under the ground; two thousand two hundred and twenty-four girders (but some of these are of wrought iron); besides eleven hundred and twenty-eight bearers for supporting galleries. The carpenter undertook to get ready within the specified period two hundred and five *miles* of sash-bar; flooring for an area of thirty-three millions of cubic feet; besides enormous quantities of wooden walling, louvre work, and partition.*

It is not till we reflect on the vast sums of money involved in transactions of this magnitude, that we can form even a slight notion of the great, almost ruinous, loss a trifling arithmetical error would have occasioned, and of the boundless confidence the parties must have had in their resources and in the correctness of their computations. Nevertheless it was one great merit in Mr. Paxton's original details of measurement, that they were contrived to facilitate calculation. Every thing in the great building is a

* The quantities and dimensions here quoted are those of the building as it now stands. They differ but slightly from Mr. Paxton's original specifications.

dividend or multiple of *twenty-four*. The internal columns are placed twenty-four feet apart, while the external ones have no more than eight feet (a third of twenty-four) of separation; while the distance between each of the transept columns is three times twenty-four, or seventy-two feet. This is also the width of the middle aisle of the building; the side aisles are forty-eight feet wide, and the galleries and corridors twenty-four. Twenty-four feet is also the distance between each of the transverse gutters under the roof; hence, the intervening bars, which are at once rafters and gutters, are necessarily twenty-four feet long.

There was little time for consideration, or for setting right a single mistake, were it ever so disastrous. On the prescribed day the tender was presented, with whatever imperfections it might have had, duly and irredeemably sealed. But after-checkings have divulged no material error. The result was, that Messrs. Fox and Henderson's offer for erecting the Paxton edifice proved to be the lowest practicable tender that was submitted to the Building Committee.

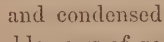
The public have long known what followed;—Mr. Paxton's Glazed Palace was eventually chosen unanimously; not only by the Building Committee but by the Royal Commission. Some modifications were, however, adopted. It was decided that the most revered of the trees were to be admitted into the Industrial building; and the central transept—the apex of whose curvilinear roof is one hundred and twelve feet from the ground—was contrived by Mr. Paxton for their inclosure. In August the space in Hyde Park was boarded in; and the first castings for the iron columns were delivered on the fourteenth of September. Yet, when these pages meet the reader's eye, the

cheapest, most gigantic and substantial structure ever dreamt of, will be nearly ready for decoration.

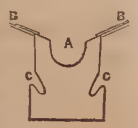
If for nothing else, this tremendous pile of transparency is astounding—for its cheapness. It is actually less costly than an agricultural barn or an Irish cabin! A division of its superficies in cubic feet by the sums to be paid for it, brings out the astonishing quotient, of little more than one half-penny (nine-sixteenths of a penny) per cubic foot: supposing it to be taken down and returned to the contractors when the Exhibition is over. Or, if it remain a fixture, the rate of cost will be rather less than a penny and one-twelfth of a penny per cubic foot. The ordinary expense of a barn is more than twice as much, or two-pence half-penny per foot. Here are the figures:—The entire edifice contains thirty-three million of cubic feet. If borrowed and taken down, the sum to be paid is seventy-nine thousand eight hundred pounds: if bought, to become a winter garden, one hundred and fifty thousand pounds.

The smallness of cost is due to the principle we have previously explained, of each component of the building being endowed with more than one purpose. The six rows of columns are, as has been already said, not only props but drains. They are hollow, and into them the glass roof will deliver its collections of water. In the base of each column is inserted a horizontal iron pipe to conduct the drainage into the sewers. These strong tubes serve also as foundation; they are links that connect the whole of the three thousand three hundred uprights together. At the top, each column is fastened to its opposite associate by a girder, run up by means of a pole and pulley in a few minutes; and, once fastened, no other scaffolding is requisite for the roof which it supports. Thus, by means of the iron pipes

below, and the iron girders above, the eighteen acres of structure is held from end to end so compact and fast that it becomes an enormous hollow cube, as immovable as if it were, instead, a solid cube dropped down beside Rotten Row by a gang of Titans.

The roofs—of which there are five, one to each aisle or corridor, the highest in the middle—play many parts. They are windows, light and heat adjusters, rain conductors outside, and condensed moisture ducts within. They are interminable rows of roofing, so placed as to form in the aggregate a plane; in other words, they are parallel rows of the letter V done in glass, in endless ridges "long drawn out," thus:  The apex of each "ridge" is a wooden sash bar, with notches on either side for holding the sloping laths in which are fitted the edges of the glass. The bottom or "furrow" bar—otherwise a rafter—is hollowed in the middle, to form a gutter, into which every drop of rain glides down from the glass, and passes through the transverse gutters into the hollow columns. These longitudinal gutters are formed at the tops of the girders; for the roof is self-supporting. This is not all: in converting a conservatory for plants into a resort for breathing beings, and a depot for articles emphatically "to be kept dry;" internal as well as external moisture must be drawn off: the breath of myriads of visitors, condensed against the glass, would otherwise return in continual Scotch mists. That difficulty partly dictated the Λ-like form of the ceiling. Mr. Paxton ascertained that vapors ascending to glass inclined to a slope of one foot in two feet and a half, do not condense in separate drops and descend again, but slide down over the smooth surface. To receive them, therefore, he grooves each rafter under the inside of the glazing. Into these grooves the con-

densed breath of "all nations" will fall and be conveyed into the transverse gutters; thence through the columns into the jurisdiction of their honors the Commissioners of Sewers. We subjoin a section of the rafter, to show the "Paxton gutter," and to clench our explanation: A is the external gutter, B B the frames of the glass, C C the internal ducts. These ingenious rafters are cut out of solid wood, in a machine (invented by the inventor of all the rest), with incredible rapidity. In order that there may be a fall for the water to run off, each rafter is slightly curved; and, to correct warping, a rod of iron, with nuts and screws at each end, forms the string of the bow, so as to regulate its deflection. For this ingenious expedient Mr. Paxton has taken out a patent.



We must now give proof that the floor is a ventilator and a dust-trap. It is laid four feet above the sward of the park. A series of subterraneous lungs are thus provided, and air is admitted to them, by means of louvres, fixed in the outer walling of the building. These being made to open and shut like Venitian blinds, will admit much or little air, which gently passes through the seams of the open flooring, and circulates over the building. Finally, through the openings of the floor, the daily accumulation of dust will be swept into a space below by a machine, which Mr. Paxton has invented for the purpose.

Enough has now been said to indicate rather than to describe how each part of the building "plays many parts," and how, consequently, incalculable saving has been effected in time and money. It is hardly necessary to repeat, that the interior of the edifice is the most expansive covered space in the world. That some idea may be formed of the excess of its capacity, we may mention, that the largest cov-

ered area in England is believed to be that of the Ravenhead Glass Works, at St. Helen's, in Lancashire, where the space roofed in is three hundred and thirty-nine feet, by one hundred and five feet, or not one quarter so large as that section of Hyde Park which Mr. Paxton has glazed over.

That a Palatial Exhibition building, providing a total exhibiting surface of twenty-two acres, and affording space for *nine miles* of tables, shall have been put up in four months for less than a penny farthing a cubic foot, would in itself make 1851 famous in the history of enterprise, if nothing else were to happen to stamp it as pre-eminently "The Industrial Year." From it will at least be dated a new era in building. In a communication from Mr. Paxton himself, which we are permitted to quote, he says :—

"When I consider the cheapness of glass and cast-iron, and the great facility with which they can be used, I have no doubt that many structures, similar to that at Darley,* will be attached to dwelling-houses, where they may serve as sitting-rooms, conservatories, waiting-rooms, or omnibus-rooms, if I may be allowed the expression. I am now, in fact, engaged in making the design for a gentleman's house to be covered wholly with glass; and when we consider that wherever lead is now used, glass may with equal propriety be substituted, I have every hope that it will be used for buildings of various conditions and character. Structures of this kind are also susceptible of the highest kind of ornamentation in stained glass and general painting. I am not without hope, however, that glass will become almost universal in its use, and that the system will be extended for manufacturing purposes, as well as general cem-

* A conservatory on the new plan, attached to a house of Mr. Paxton's, in Derbyshire.

eteries, and also for horticultural buildings, so that even market-gardeners will advantageously apply it, in the growing of foreign fruit for the London markets. I even go so far as to indulge in the sanguine hope that agriculture will be ultimately benefited by the application of cast-iron and glass. In short, there is no limit to the uses to which they may be applied; and we may congratulate ourselves, that in the nineteenth century the progress of science, and the spirit of manufacturers, have placed at our disposal the application of materials which were unknown to the ancients, and thereby enabled us to erect such structures as would have been deemed impossible, even in the early part of the present century."

Physiology of Intemperance.

"ONE glass more," exclaimed mine host of the Garter. "A bumper at parting! No true knight ever went away without 'the stirrup cup.'"

"Good," cried a merry-faced guest; "but the Age of Chivalry is gone, and that of water-drinkers and teetotallers has succeeded. Temperance societies have been imported from America, and grog nearly thrown overboard by the British Navy."

"Very properly so," observed a Clergyman who sat at the table. "The accidents which occur from drunkenness on board ship may be so disastrous on the high seas, and the punishment necessary to suppress this vice is so revolting, that the most experienced naval officers have recommended the allowance of grog, served both to officers and men in our Navy, to be reduced one-half. In America, as well as in our own Merchant Service, vessels sail out of harbor on the Temperance principle; not a particle of spirits is allowed on board; and the men, throughout the voyage, are reported to continue healthy and able-bodied. Tea is an excellent substitute; many of our old seamen prefer it to grog."

"That may be," exclaimed the merry-faced guest. "Horses have been brought to eat oysters; and on the

Coromandel coast, Bishop Heber says, they get fat when fed on fish. Sheep have been trained up, during a voyage, to eat animal food, and refused, when put ashore, to crop the dewy greensward. When honest Jack renounces his grog, and, after reefing topsails in a gale of wind, goes below deck to swill down a domestic dish of tea, after the fashion of Dr. Samuel Johnson, at Mrs. Thrale's, I greatly fear the character of our British seamen will degenerate. In the glorious days of Lord Nelson, the observation almost passed into a proverb, that the man who loved his grog always made the best sailor. Besides, in rough and stormy weather, when men have perhaps been splicing the mainbrace, and exposed to midnight cold and damp, the stimulus of grog is surely necessary to support, if not restore, the vital energy?"

"Not in the least," rejoined the Clergyman. "Severe labor, even at sea, is better sustained without alcoholic liquors; and the depressing effects of exposure to cold and wet weather best counteracted by a hot mess of cocoa or coffee served with biscuit or the usual allowance of meat. In fact, I have lately read, with considerable satisfaction, a prize essay by an accomplished physician, in which he proves that alcohol acts as a poison on the nervous system, and that we can dispense entirely with the use of stimulants."

"Not exactly so," observed a Physician, who was of the party. "Life itself exists only by stimulation; the air we breathe, the food we eat, the desires and emotions which excite the mind to activity, are all so many forms of physical and mental stimuli. If the atmosphere were deprived of its oxygen, the blood would cease to acquire those stimulating properties which excite the action of the heart, and sustain the circulation; and if the daily food of men were

deprived of certain necessary stimulating adjuncts, the digestive organs would no longer recruit the strength, and the wear and tear of the body. Nay, strange as it may appear, that common article in domestic cookery, salt, is a natural and universal stimulant to the digestive organs of all warm-blooded animals. This is strikingly exemplified by the fact, that animals, in their wild state, will traverse, instinctively, immense tracts of country in pursuit of it; for example, to the salt-pans of Africa and America; and it is a curious circumstance, that one of the ill effects produced by withholding this stimulant from the human body is the generation of worms. The ancient laws of Holland condemned men, as a severe punishment, to be fed on bread unmixed with salt; and the effect was horrible; for these wretched criminals are reported to have been devoured by worms, engendered in their own stomach. Now, I look upon alcohol to be, under certain circumstances, as healthful and proper a stimulant to the digestive organs as salt, when taken in moderation, whether in the form of malt liquor, wine, or spirits and water. When taken to excess, it may act upon the nervous system as a poison; but the most harmless solids or fluids may, by being taken to excess, be rendered poisonous. Indeed, it has been truly observed, that 'Medicines differ from poisons, only in their doses.' Alcoholic stimulants, artificially and excessively imbibed, are, doubtless, deleterious."

"The subject," observed the Host, filling his glass, and passing the bottle, "is a curious one. The port before us, at all events, is not poison; and I confess, that so ignorant am I of these matters, that I would like to know something about this alcohol which is so much spoken of."

"The explanation is not difficult," answered the Doctor. "Alcohol is simply derived by fermentation, or, distillation,

from substances or fluids containing sugar; in other words, the matter of sugar, when subjected to a certain temperature, undergoes a change, and the elements of which the sugar was previously composed enter into a new combination, which constitutes the fluid named Alcohol, or Spirits of Wine. Raymond Lully, the alchemist (thirteenth century), is said to have given it the name of Alcohol; but the art of obtaining it was, in that age of darkness and superstition, kept a profound mystery. When it became more known, physicians prescribed it only as a medicine, and imagined that it had the important property of prolonging life, upon which account they designated it 'Aqua Vitæ,' or the 'Water of Life,' and the French, to this day, call their Cognac '*Eau de Vie.*'"

"It is a remarkable circumstance," observed the Clergyman, filling his glass, "that there is hardly any nation, however rude and destitute of invention, that has not succeeded in discovering some composition of an intoxicating nature; and it would appear, that nearly all the herbs, and roots, and fruits on the face of the earth have been, in some way or other, sacrificed on the shrine of Bacchus. All the different grains destined for the support of man; corn of every description; esculent roots, potatoes, carrots, turnips; grass itself, as in Kamschatka; apples, pears, cherries, and even the delicious juice of the peach, have been pressed into this service; nay, so inexhaustible appear to be the resources of art, that a vinous spirit has been obtained by distillation, from milk itself."

"Milk!" cried the merry-faced guest, "Can alcohol be obtained from mother's milk?"

"Very probably," continued the Clergyman. "The Tartars and Calmucs obtain a vinous spirit from the distillation of mares' and cows' milk; and, as far as I can recol-

lect, the process consists in allowing the milk first to remain in untanned skins, sewed together, until it sours and thickens. This they agitate until a thick cream appears on the surface, which they give to their guests, and then, from the skimmed milk that remains, they draw off the spirits."

"Exactly so," observed the Doctor, "but it is worthy of notice, that a Russian chemist discovered that if this milk were deprived of its butter and cheese, the whey, although it contains the whole of the sugar of milk, will not undergo vinous fermentation."

"These facts," observed the Host, "are interesting, but they are more curious than useful. The alcohol, I presume, from whatever source it be derived, is chemically the same thing; how, then, does it happen that some wines, containing precisely the same quantity of alcohol, intoxicate more speedily than others?"

"The reason," explained the Doctor, "is simply this. We must regard all wines, even the very wine we are drinking, not as a simple mixture, but as a compound holding the matter of sugar, mucilaginous, and extractive principles contained in the grape juice, in intimate combination with the alcohol. Accordingly, the more quickly the real spirit is set free from this combination, the more rapidly are intoxicating effects produced; and this is the reason why wines containing the same quantity of alcohol have different intoxicating powers. Thus, champagne intoxicates very quickly. Now this wine contains comparatively only a small quantity of alcohol; but this escapes from the froth, or bubbles of carbonic acid gas, as it reaches the surface, carrying along with it all the aroma which is so agreeable to the taste. The liquor in the glass then becomes vapid. This has been clearly proved. The froth of champagne has been collected under a glass bell, and condensed

by surrounding the vessel with ice; the alcohol has then been found condensed within the glass. The object, therefore, of icing champagne—or rather, the effect produced by this operation—is to repress its tendency to effervesce, whereby a smaller quantity of alcohol is taken with each glass. Wines containing the same quantity of alcohol accordingly differ in their effects; nay, it is not to the alcohol only they contain that certain noxious effects are to be attributed, for, as Dr. Paris clearly shows, when they contain an excess of certain acids, a suppressed fermentation takes place in the stomach itself, which will cause flatulency and a great variety of unpleasant symptoms. In fact, a fluid load remains in the stomach, to undergo a slow and painful form of digestion."

"But, in whatever shape you introduce it," remarked the Host, "whether disguised as wine, or in the form of brandy, whisky, or gin-and-water, it matters not—I wish to have a clear idea of the immediate effects of alcohol upon the living system."

"Well!" said the Doctor, "it can very easily be described. When you swallow a glass—let us say of brandy-and-water—the stimulating liquid, upon entering into the stomach, excites the blood-vessels and nerves of its internal lining coat, which causes an increased flow of blood and nervous energy to this part. The consequence is, that the internal membrane of the stomach becomes highly reddened and injected, just as if inflammation had already been produced by the presence of the stimulant. Thus far you probably follow me;—but this is not all—the vessels thus excited have an absorbing power; they suck up (as it were) and carry directly into the stream of the circulation a portion (at all events) of the alcohol which thus irritates them. The result is, that alcohol is thus mixed with the blood and

brought into immediate contact with the minute structure of all the different organs of the body."

"But how," asked the merry-faced guest, "Can this be known? Who ever saw into the stomach of a living man?"

"Strange as it may appear to you, that has been done, and all the circumstances connected with the digestion of solids and fluids in the stomach have been very accurately observed. It happened, in the year 1822, that a young Canadian, named Alexis St. Martin, was accidentally wounded by the discharge of a musket, which carried away a portion of his ribs, perforating and exposing the interior of the stomach. After the poor fellow had undergone much suffering, all the injured parts became sound, excepting the perforation into the stomach, which remained some two and a half inches in circumference; and upon this unfortunate individual his physician, Dr. Beaumont, when he was sufficiently well, made a series of very careful observations, which have determined a great variety of important points connected with the physiology of digestion. Fluids introduced into the stomach rapidly disappeared, being taken up by these vessels and carried into the system. We cannot, therefore, be surprised to hear that so subtle and penetrating a fluid as alcohol should very speedily find its way into all the tissues of the body. Its presence may be smelt in the breath of persons addicted to spirituous liquors, as well as in their secretions generally."

"But to what do you attribute the noxious effects of alcohol, allowing it to be thus carried by direct absortion into the circulation?" asked the Host.

"To the excess of carbon," answered the Doctor, "which is thus introduced into the system; and explains why the liver, in hard drinkers, is generally found diseased."

"How so?" inquired the Host. "I have heard of the 'Gin Liver.'"

"It is well known that a long residence in India," interposed the Clergyman, "will give rise to enlargement and induration of this organ."

"And for the same reason," answered the Doctor, "the liver acts as a substitute for the lungs—just as the skin acts vicariously for the kidneys."

"Not a word of this do I undestand," said the merry-faced guest.

"Well, then," continued the Doctor, "I will endeavor to explain it. By a wonderful provision of Nature, which appears to come under the law of compensation, when one organ, by reason of decay, is unable to perform its functions, another undertakes its functions, and, to a certain extent, supplies its place. You all know that blind people acquire a preternatural delicacy in the sense of touch, which did not escape the philosophical observation of Wordsworth, who speaks of

> "A watchful heart,
> Still couchant—an inevitable ear;
> And an eye practised like a blind man's touch."

Now, it is the office of the vessels of the skin to throw off by perspiration the watery parts of the blood; the kidneys do the same; and under a great variety of circumstances which must be familiar to all, these organs frequently act vicariously for one another. The office of the liver, and the lungs also, is in like manner to throw off carbon from the system, and when during residence in a tropical climate the lungs are unable, from the state of the atmosphere, to perform their functions, the liver acting vicariously for this organ is stimulated to undue activity, and becomes consequently diseased. Applying these remarks to the Spirit

Drinker, it is obvious that the excess of carbon introduced into the system by alcohol is thrown upon the liver, and by stimulating it to undue activity produces a state of inflammation."

"This I understand," observed the Clergyman, "but how does it act upon the brain? Does the alcohol itself actually become absorbed, and enter into the substance of the brain?"

"The effect of an excess of carbon, in the blood-vessels of the brain, is to produce sleep and stupor; hence the drunkard breathes thick, and snores spasmodically, and after this state, ends in confirmed apoplexy and death—just as dogs become insensible when held over the Grotto del Cane, in Italy, where they inhale this deleterious gas. But in addition to this it has been clearly proved, that alcohol does enter into the substance of the brain, for it has been detected by the smell, upon examining the brain of persons who have died drunk; besides which, alcohol, after having been introduced by way of experiment, into the body of a living dog, has afterwards been procured absolutely as alcohol by distillation from the substance of the brain. It is so subtile a fluid that Liebig says, it permeates every tissue of the body."

"But how do you explain the circumstance that death sometimes happens suddenly after drinking spirits," asked the Host, "before there can be time for absorption to take place?"

"I remember, not many years ago," inteposed the merry-faced guest, "a waterman in attendance at the cab-stand at the top of the Haymarket, for a bribe of five shillings, tossed off a bottle of gin, upon which he dropped down insensible, and soon died."

"This may clearly be accounted for," observed the Doc-

tor. "The stomach, as I premised, is plentifully supplied with nerves, and is connected with one of the great nervous centres in the body, so that a sudden impression produced upon these nerves, by the introduction of a quantity of such stimulus, gives a shock to the whole nervous system, which completely overpowers it. From the centre to the circumference it acts like a stroke of lightning, and the death is often instantaneous. A draught of iced water taken when the system has been overheated by exertion, by dancing or otherwise, has been known to be immediately fatal. The physiological action—or rather the 'shock' upon the nervous system, is in both cases the same—violent mental emotion will, in like manner, suspend the action of the heart and produce instant death. These are the terrors of alcohol, when drank to excess; but the health of the habitual tippler is sure to be undermined; his hands become tremulous, he is unsteady in his gait, his complexion becomes sallow; and all his mental faculties gradually impaired."

"To what, may I ask," inquired the merry-faced guest, "do you attribute the circumstance of the trembling hand recovering its steadiness, after taking a glass of spirits in the morning after a debauch; 'hair of the dog,' as it is called, 'that bit over-night?'"

"Action and reaction is the great Law of the Animal Economy," replied the Doctor; "over-stimulation will always produce a corresponding degree of depression, when, therefore, the nervous system has been over-excited by alcoholic liquors, the usual amount of nervous energy which is necessary to give tone to the muscular system is wanting, and then a stimulus gives a fillip to the nervous centres, which restores the nervous powers to the extremities. When this state of things, however, has been permitted to go on, and the brain has been frequently brought under alcoholic influ-

ence, its structure becomes affected, and a slow and very insidious inflammation takes place, which terminates in a softening of its substance. This mischief may proceed for a considerable period without being suspected, but on a sudden '*delirium tremens*' may supervene, which will terminate, perhaps, in paralysis—perhaps death!'

"To what, Doctor," inquired the Clergyman, "do you attribute the mental pleasures of intoxication? Can this be explained upon physiological principles?"

"Easily, I think," answered the Doctor. "All inebriating agents have a twofold action—as I have already pointed out—first, on the circulation; and secondly, on the nervous system. There can be no doubt that the mind becomes endowed with increased energy when the circulation through the brain is moderately quickened. This has been proved by observation. The case has been reported of a person who having lost by disease a part of the skull and its investments, a corresponding portion of brain was open to inspection. In a state of dreamless sleep, the brain lay motionless within the skull; but when dreams occurred, as reported by the patient, then the quantity of blood was observed to flow with increased rapidity, causing the brain to move and protrude out of the skull. When perfectly awake and engaged in active thought, then the blood again was sent with increased force to the brain, and the protrusion was still greater. Under all circumstances, increased circulation through the brain gives rise to mental excitement, and sometimes to an unusual lucidity of ideas. It is observed in the early stages of fever and even in the dying—and this accounts for the clearing up of the mind which sometimes occurs in the last moments of life—what is called familiarly 'the lightening before death.'"

"That," observed the Clergyman, "is a very curious

circumstance, which I firmly believe; and you account for this, if I understand your meaning, by explaining that the blood which no longer circulates in the extremities which may have become cold, flows with increased impetus through the brain."

"Exactly so," replied the Doctor, "and upon this very principle the rapidity of ideas, and the pleasurable mental excitement attending that temporary state of intellectual exaltation, depends on the increased rapidity of the flow of blood through the brain; but when this becomes carried to too great an extent, and the rapidity of the current disturbs the healthy condition of the brain, then the manifestations of the mind necessarily become impaired, the ideas are no longer under the control of the reasoning faculty, and the bodily organs, usually under the dominion of the will, no longer obey its mandates. This I believe to be the true theory of mental intoxication."

"But there are many circumstances," observed the Host, "which may accelerate or retard this excitement."

"Certainly," continued the Doctor; "persons who join the social board already elated with some good news, or cause of unusual happiness; persons who talk much, and excite themselves in argument, are apt to become affected more speedily than those who hold themselves in the midst of the convivial scene sedate and taciturn. The mind, in fact, may exercise a considerable power of resistance against inebriation; for which reason, persons in the society of their superiors, under circumstances which render it necessary they should maintain the appearance of being always well conducted, drink with impunity more than they otherwise could, if they did not impose upon themselves this consciousness of self-government. We also observe the influence of the mind, in controlling, and, indeed,

putting an end to a fit of intoxication, by making, doubtless, an impression on the heart and causation, when a sense of danger, or a piece of good or bad news, suddenly communicated, sobers a person on a sudden."

"I have heard," observed the merry-faced guest, "that moving about—changing from one seat into another—will check the effects of liquor; and I have known persons who have left a social party perfectly sober, become suddenly tipsy in the open air. How is this to be explaiend?"

"Precisely on the same principle," answered the Doctor; "upon leaving an overheated room, on your returning homewards, you expose yourself to an atmosphere many degrees below that you have just left. The cold checks the circulation on the surface of the body; the blood is driven inwards; it accumulates, consequently, in the internal organs; and sometimes its pressure is such on the brain, as to produce on a sudden the very last stage of intoxication. The limbs refuse to support their burthen, and the person falls down in a state of profound insensibility."

"I have recently," said the Host, "read in the Police Reports several cases of this description; and imagined that some narcotic drug must have been mixed with the liquor drank by such persons. Adulterations of some sort must go on to a frightful extent in gin-palaces."

"Not by any means," answered the Doctor, "to the extent you suppose. It is said that the spirit-dealer makes his whisky or gin bead by adding a little turpentine to it. Well! what then? Turpentine is a very healthy diuretic. It is given to infants to kill worms in very large doses. Then, again, vitriol is spoken of; but so strong is sulphuric acid, that it would clearly render these spirits quite unpalatable. I do not affirm that the art of adulteration may not occasionally be had recourse to, even with criminal inten-

tions, for such cases have been brought under the notice of the authorities; but I do not believe the practice is so general as some persons suppose. I apprehend dilution is a more general means of fraud.

"It has often occurred to me," said the Clergyman, "that our municipal regulations might, on this subject, be much improved. Our Excise officers enter the cellars of the wholesale and retail spirit dealer, only to gauge the strength of the spirit, and to ascertain how much it may be overproof, which alone regulates the Government duty; but for the sake of the public health I would go further than this. If a butcher be found selling unhealthy meat; a fishmonger, bad fish; or a baker cheat in the weight of bread, they severally have their goods confiscated, and are fined: and so far the public is protected. But the authorities seem not to care what description of poison is sold across the counter of gin-palaces—an evil which may easily be remedied. I would put the licensed victualler on the same level with the butcher and fishmonger: and if he were found selling adulterated spirits, and the charge were proved against him by the same having been fairly analyzed, he, too, should be liable to be fined, or even lose his license. The public health is, upon this point, at present, utterly unprotected."

"Some such measure," observed the Host, "might be advantageously adopted; but I confess that I do not advocate the prohibition principle; instead of preaching a Crusade against the use of any particular article, whether of necessity or comfort, let us educate the people, and improve their social condition by inculcating sound moral principles; they will soon learn that habits of industry and temperance can alone insure them and their children happiness and

prosperity; and in so doing you will teach a sound, practical, permanent lesson."

"But," interrupted the Clergyman, "if we continue the conversation longer, we shall ourselves become transgressors; the 'stirrup-cup' is drained: much remains doubtless to be said respecting the evils, physical and moral, which arise from intemperance; but let us now adjourn."

"With all my heart!" said the Host, "and now, 'to all and each, a fair good night!'"

Sleep.

OUR health and happiness depend very much on the way in which we regulate our lives. Strange as it may appear, there is a discipline which should be observed in our sleeping, as well as in our waking hours. But, after all, what is sleep? "It is so like death," said Sir Thomas Browne, "that I cannot trust myself to it without my prayers." Our medical philosophers puzzle themselves in vain to account for it; and move about in a circle of truisms, reminding us of the kitten described by Goethe, everlastingly playing with its own tail. There is no better description given of the approach of sleep than that which we find in one of Leigh Hunt's papers in the "Indicator."

"It is a delicious moment certainly, that of being well nestled in bed, and feeling that you shall drop gently to sleep. The good is to come—not past; the limbs have been just tired enough to render the remaining in one posture delightful: the labor of the day is done. A gentle failure of the perceptions comes creeping over one; the spirit of consciousness disengages itself more and more with slow and hushing degrees, like a mother detaching her hand from that of her sleeping child; the mind seems to have a balmy lid closing over it, like the eye;—'tis closing—'tis

more closing—'tis closed. The mysterious spirit has gone to take its airy rounds." But what is the immediate cause of sleep?—Let us explain.

There can be no doubt that a certain amount of nervous energy is necessary to support the activity of the body; and when this is exhausted by the exertions of the day, the organs of animal life become fatigued, and unable any longer to perform their functions. Hence their prostration, arising from the want of their usual nervous stimulus, superinduces a state of sleep. The perception of external objects becomes confused; the eyes grow dim; the lids drop, in spite of every effort to uphold them; then the muscles of the back and neck relax their tension; the head falls forwards, or to one side or the other, and the body sinks, as far as circumstances will permit, into a horizontal position. But the sense of hearing remains for a period after that of sight; so that we may hear the conversation of persons around us, long after we are able to perceive their gestures, and discriminate the object of their remarks. In this half-waking, half-sleeping condition, which the French call "*demi-sommeil*," we may remain as in a pleasing reverie, for some time, until sleep absorbs the last glimmering of consciousness. Now, if this state arise, as we believe it does, from a deficiency or exhaustion of nervous energy, the more perfectly developed we shall find the nervous system, the greater will be the amount of sleep required to recruit the animal strength. Let us take a glance through the different gradations of the Animal Kingdom.

If we begin with Insects we shall find that although many, like the common housefly, remain for months in a state of torpidity, yet they may continue wakeful and cheerful throughout the year—in fact, they scarcely sleep at all. We shall next observe that in fishes the nervous

system is only imperfectly developed, therefore they require little sleep, and when asleep, they may be observed motionless in the water, with the exception of a gentle movement of the tail, in which state they may be easily netted, or even taken with the hand; but, if suddenly touched, they start in an instant, and swim away in evident alarm. The Serpent tribes, which rank somewhat higher in the scale of organization, remain awake many days and nights, and then have long periods of repose. The Boa Constrictor, after gorging itself to repletion, will remain for many days or weeks motionless and insensible. But this should be regarded as a state of lethargy, consequent upon over distension, rather than one of natural repose.

As we proceed higher in gradation, we shall find that birds sleep much more than fish or reptiles; but the slightest noise or movement will awaken them, as was evinced by the cackling of the sacred geese which saved the Capitol of Rome from the soldiers of Brennus, when the watchdogs and sentries were sleeping at their posts. When we arrive at the different orders of quadrupeds, the brain and spinal marrow appear more fully developed; and the consequence is, that in obedience to their instincts, those which are active by day, sleep by night, and those which roam abroad in quest of prey during the night, sleep by day. It is a curious circumstance, however, that this order of their nature is reversed in those animals which are kept in captivity; thus it may be observed that the lions, tigers, hyenas, &c., in the Zoological Gardens, remain awake during the day, and sleep by night. They accommodate themselves, so far, to the uses of "civilization." The Monkey tribes—particularly the ringtails and smaller species, are very restless; but the great baboon or Chimpanzee, the organization of whose brain very closely resembles that of Man, will take

his six or eight hours sleep, if undisturbed. We therefore come to the conclusion that the more fully developed the nervous system is—the greater being the amount of nervous energy that is successively generated and exhausted, as it were from its electrical battery—the greater will be the quantity of sleep required; hence it has been truly remarked, that "Man sleeps longer than any of the larger animals."

Let us now draw near to the bedside, and consider more attentively this mysterious state;—let us examine the phenomena of sleep.

It will be observed that the breathing is slower than it is when we are awake; the inspirations are fuller and deeper, and there is a greater interval between them. They also take place with an increased sound: and, when very forcible, the most "unmusical" of instruments, viz. the nose, is "called upon" for a song—and snoring occurs; more especially if the tongue touch the palate, or the mouth remain partially open. In these cases the inspired and expired air encounters an obstruction; and when the soft palate at the back of the mouth is thrown thereby into a state of vibration, a louder and more discordant noise is produced. Many persons, however, particularly young people who are delicate, breathe very gently; their respiration, during sleep, is sometimes scarcely audible.

We have known a lady in extreme grief lie in a kind of trance, breathing so feebly for nearly a fortnight, that her respiration was scarcely perceptible to the ear. It is the same in infancy; and under the exhaustion produced by many diseases, there would appear to be no manifest boundary between sleep and death. Like the respiration, the circulation also diminishes in rapidity; the pulse becomes slower and fuller. The vessels of the skin relax; and it has been

proved that a person sleeping healthfully and without any artificial means to promote it, will, during an undisturbed sleep in a given space of time, perspire insensibly twice as much as a person awake. The temperature of the body, under such circumstances, falls somewhat below its waking standard; which, in the management or dicipline of sleep, is a matter of considerable importance. On this account, during sleep, there is less resistance to the cooling power and morbid effects of cold than when we are awake. "Therefore," says Dr. Elliotson, "persons cover their heads before going to sleep; and when habit has not overcome the necessity for this, cold is continually caught from its neglect. A draught of air is far more dangerous in the sleeping state, and the back of the body appears less vigorous than the front, as a draught at the back is much more dangerous than in front." The cause of this is obvious: the cold strikes directly on the spinal column—the back bone having, unlike the chest, very little muscular protection. It is important, therefore, that during sleep the back should be well covered. Dr. Elliotson adds, that "agues are caught more readily if persons fall asleep;" which may be explained by this simple fact that although the muscular system is relaxed and prostrate, and the organs of sense veiled, as it were, from communion with the external world, the processes of absorption, digestion, and nutrition go on with increased activity. The function of absorption is particularly active, which explains the danger of sleeping in marshy places, or where there is a succession of palludal exhalations. Already we have observed, that during sleep —when the nervous system is in repose, the temperature of the body is reduced—there is less animal heat generated; hence arises the danger of yielding to sleep when exposed to cold. "The power of intense cold in producing sleep," as Dr. Macnish observed, is very great in the human subject;

and nothing in the winter season is more common than to find people lying dead in the fields and the highways from such a cause. When Dr. Solander was crossing the mountains which divide Sweden from Norway, in company with Sir Joseph Banks and several other gentlemen, he warned them, saying, "Whoever sits down will sleep; and whoever sleeps will wake no more." Shortly afterwards Dr. Solander was the first who felt an irresistible inclination to lie down, and one of his fellow travellers, Mr. Richmond, persisted in doing the same, declaring that "he desired nothing better than to lie down and die." Both lay down. Finding it impossible to proceed with them, Sir Joseph Banks and the rest lit fires with brushwood around them; having done which, Sir Joseph endeavored to wake Dr. Solander, and happily succeeded; but though he had not slept five minutes, he had almost lost the use of his limbs, and the muscles were so shrunk, that the shoes fell from his feet. He consented to go forward with such assistance as could be given him; but no attempts to relieve Mr. Richmond were successful —he died on the spot. In severe winter weather, when the poor suffer much from cold, blankets are almost as indispensable to them as food. There is also one very interesting and important fact connected with this subject; it is that sleep promotes the cure of all diseases. What the physicians of old called "*the crisis*" occurs in this state, and it is not, therefore, without reason that the afflicted relatives watching round a sick bed await with painful anxiety the awaking of their patient. In a state of health, sleep not only contributes to the prolongation of life, but enhances the conscious pleasure even of our existence; indeed it frequently happens, after a refreshing night's rest, that the mind experiences a high degree of unwonted buoyancy, particularly after pleasant dreams, although the details of

them may not be remembered—a circumstance which Shakspeare has admirably described, where Romeo says, in a tone of exultation,

> "If I may trust the flattering eye of sleep,
> My dreams portend some joyful news at hand;
> My bosom's lord sits lightly on his throne,
> And all this day an unaccustom'd spirit
> Lifts me above the ground with cheerful thoughts."

In order, however, that we may enjoy these advantages it behooves us to consider in what manner sleep should be disciplined, for when we consider "how use doth breed a habit in a man," it is obvious that even this "wide blessing" may be strangely abused. We may, therefore, fairly ask what is the quantity of sleep which a reasonable man should be contented with.

This is somewhat a difficult question. Tall and bulky people require more sleep than short and thin people; men than women; and all animals sleep longer in winter than in summer. Age, constitution, climate, occupation, and a variety of incidental causes must be taken into consideration. During the first three months of life, nutrition and sleep constitute the whole sum of existence; the infant awakes when hungry to take nourishment, when satisfied it falls asleep again. As the development of the nervous system, in particular, goes on at this period, with remarkable rapidity, the more it sleeps the better. In extreme old age much sleep is also required. The famous Dr. Thomas Parr, who died at the extraordinary age of one hundred and fifty two years and nine months, latterly slept away the greater part of his existence. We knew an old lady, one hundred and five years of age, in Essex, who slept nearly twenty out of the twenty-four hours. Youth and young adults sleep, habitually, very

soundly: and it is during this period of life that lazy and sluggish habits are easily engendered. The faculty of remaining asleep longer than is necessary cannot be indulged in without impairing the strength of the body and mind. The continued depression of the nervous system and excessive transpiration occasion physical debility, while the intellectual faculties, from constantly slumbering in a state of inactivity, become gradually enfeebled. Valengin relates the case of a young man, who, in consequence of too much sleep, became lethargic, and died at the age of twenty three years. Boerhaave gives an account of a physician, who, from excessive sleep, became mentally imbecile, and perished, miserably, in a hospital. The somnolency of the fat boy in Pickwick is, by no means, an exaggeration. Persons have existed who have almost dozed away their entire existence. One Elizabeth Oven, Dr. Macnish says, spent three-fourths of her life in sleep. Another woman, Elizabeth Perkins, would sleep for ten or eleven days at a time, and then spontaneously awake, and go about as usual. The "sleeping lady of Nismes" (as she was called) had attacks of somnolency which lasted sometimes for days—and even months. Her sleep was remarkable. During the brief interval of her wakefulness she hurriedly swallowed small quantities of broth, which was kept ready prepared for her. When the somnolency had continued for six months, it left her suddenly for six months, and then attacked her again, leaving another interval of six months. At length the affection gradually disappeared altogether, and she lived to the age of eighty-one, and eventually died of dropsy. Sleep, therefore—too prolonged sleep—may become a disease; nay more, persons, from habit, may bring themselves to sleep when they will and wake when they will. Quin, the celebrated comedian; Napoleon; the philosopher Reid; and

Captain Barclay, the great pedestrian, are said to have commanded this faculty.

On the other hand, some persons have lived in a state of constant wakefulness, and scarcely slept at all; we frequently, indeed, meet with individuals of an active nervous temperament, who habitually require very little sleep. The celebrated General Elliot never slept more than four hours of the twenty-four; his food consisting wholly of bread, water, and vegetables. Frederick the Great of Prussia, and the eminent John Hunter, never slept more than five hours during the same period. Dr. Gooch gives an instance of a man who slept for only fifteen minutes out of the twenty-four hours. Sir Gilbert Blane states, that General Pichegru informed him that, in the course of his active campaigns, he had, for a whole year, not slept more than one out of every twenty-four hours. There can be no doubt that mental activity, accompanied by anxiety, will keep up an excitement of the brain which will produce a state of constant watchfulness. Boerhaave says, that after his mind, on one occasion, had been greatly over-worked, he could not sleep for six weeks; and it is well known that sleeplessness is one of the most ordinary symptoms of insanity. In a state of health the amount of sleep required to restore the nervous energy averages, we conceive, from six to eight hours. Jeremy Taylor insisted that three hours sleep was sufficient; Baxter, four; and Wesley recommends the standard to be limited to six out of the twenty-four hours. We believe that six hours is with many sufficient; it is so with the Duke of Wellington, and few statesmen, engaged in active business, allow themselves a longer period of repose. Three or four hours, we have heard, is all that Lord Brougham, in his best days, required, and he always rose sufficiently refreshed; but literary men need more sleep perhaps than others. We

are informed, by Lockhart, that Sir Walter Scott, both as a young man and in more advanced age, required "a good allowance of sleep;" and he, on principle, indulged in it, saying "he was but half a man if he had not full *seven* hours of utter unconsciousness." We have already premised that tall and bulky people require more sleep than short people; and Sir Walter, besides being a large boned, was, it may be said, a tall man. It is a curious circumstance, we do not remember to have met with in his Biography, that, being desirous of joining an athletic club, which existed in Edinburgh, he was proposed as a candidate. This was called "The Six Feet Club," and it was a *sine quâ non* that every member should be of that stature. We believe the Earl of Errol became the patron of this club, the object of which was to promote athletic exercises and the sports and pastimes of the "Highland Games." When Sir Walter Scott presented himself to be measured there was some doubt about his being eligible; but when he had taken off his shoes and placed himself under the measuring ordeal-post, it was found that he exactly reached the requisite height. His head just scraped the mark, and he was, therefore, admitted a member of the "Six Feet Club," with all the honors.

To return. Whatever may be the quantity of sleep required, early rising is essential to health, and promotes longevity. Almost all men who have distinguished themselves in Science, Literature, and the Arts, have been, as Mr. Macnish states, early risers. The industrious, the active-minded, the enthusiast in pursuit of knowledge or gain, are up betimes at their respective occupations, while the sluggard wastes the most beautiful period of life in pernicious slumber. Homer, Virgil, and Horace, are all represented as early risers; the same was the case with Paley, Franklin, Priestly, Parkhurst, and Buffon; the last of whom or-

dered his servant to awaken him every morning, and compel him to get up by force if he evinced any reluctance, for which service he was rewarded with a crown each day, which recompense he forfeited if he did not oblige his master to get out of bed before the clock struck six. Bishops Jewel and Burnet rose every morning at four o'clock. Sir Thomas Moore did the same thing. Napoleon was an early riser, so was Frederick the Great, and Charles the Twelfth; so is her present Majesty; and so are almost all the nobility in attendance upon the Court. That early rising tends to prolong life, appears to be clearly proved. One of our most eminent Judges, Lord Mansfield, was at the pains of collecting some curious evidence on this subject. When he presided in his judicial capacity over the court he questioned every very old person who appeared at the bar, respecting his habits. "What age are you?" "What sort of life have you led—often drunk, eh?" "Please God," answered a man upwards of ninety, "I have seldom gone to bed sober," and in fact it turned out that while some of these veterans pleaded guilty to habitual intemperance, and others on the contrary, attested their uniform sobriety, all agreed on one point—that of having been early risers. Nevertheless, the morning snooze has, we confess, its temptations. Our readers will remember Burns's pleasant little song.

"Up in the morning's no for me,
Up in the morning early;
When a' the hills are cover'd wi' snaw,
I'm sure it's winter fairly."

Thomson, the author of "The Seasons," passed a great portion of his time in bed.

Dean Swift, we are told, lay in bed until eleven o'clock every morning, to think of wit for the day.

Sir Walter Scott observed, "I like to lie *simmering*

over things for an hour or so before I get up—and there's the time I am dressing to overhaul my half-sleeping, half-waking *projet de Chapitre*, and when I get the paper before me, it commonly runs off pretty easily." We have always considered the morning toilette should be gone through very methodically, and very deliberately; it is a ceremony that should not be too hastily performed; during the operation of shaving in particular, which ought always to be performed slowly, many strange fancies and thoughtful suggestions may flit across the mind. It should, however, be added that Sir Walter Scott, during the greater part of his life, rose by five o'clock, and that his literary work was chiefly acomplished before breakfast.

Early rising if inculcated in youth, will in after life become a habit; hence many persons at whatever hour they retire to bed, will awaken at the same hour the next morning. The influence of habit on the discipline of sleep is very remarkable. Persons accustomed to sleep in the noisy thoroughfares of a town are disturbed by the quietude of the country, and complain that they cannot sleep for the silence. The story is related of a miller, who being very ill, his mill was stopped that he might not be disturbed by its noise; but this so far from inducing sleep prevented it altogether, and it was not until the mill was again set going, that he could compose himself to sleep at all. So also the manager of some vast iron works, who slept close to them amid the din of hammers, forges, and blast-furnaces, always awoke if there were any cessation of the noise during the night. If a person fall asleep listening to the ringing of a church bell, he may remain conscious, while sleeping, that it continues ringing, and will be aroused by its suddenly stopping. We also remember the anecdote of an old admiral's wife who was awakened by not hearing the

morning gun go off. It is certain that by habit a person may bring himself to awake at any given hour. Seamen and soldiers on duty do so constantly. When the British troops returned into cantonments, after bivouacking in the Peninsula, and sleeping constantly on the ground, they preferred sleeping on the floor in the barracks and hospitals, even to the palliasses, or mattressed beds provided for them. Hence, persons accustomed to sleep on a mattress cannot endure what others conceive to be the luxury of a feather bed. How differently our ancestors fared, in respect to these comforts, will be found detailed in many an old chronicle. "Our fathers," says Hollingshed, "and we ourselves have lain full often upon straw pallettes, covered only with a sheet, under coverlets made of dagswain, or hoperlots (I use their own terms) and a good round log under their heads, instead of a bolster. If it were so that the father or the good man of the house had a mattress, or a flock bed, and thereto a sack of chaff to rest his head upon, he thought himself to be as well lodged as the lord of the town. So well were they contented. Pillows, said they, were thought meet only for women. As for servants, if they had any sheet above them, it was thought well; for seldom they had any under their bodies to keep them from the prickling straws that run oft through the canvas, and pared their hardened hydes." There can be little doubt that the tendency of over-civilization, is to produce effeminacy, and many of our fashionable young aristocrats resemble now-a-days, the delicate youth, who could not sleep because, forsooth, a rose-leaf was doubled under him.

There is one very curious fact connected with this subject, that merits particular attention—it is the periodicity of sleep. The laws of nature may be tampered with, but they cannot be subverted; we may step out of the paths

she has prescribed, but we cannot go far beyond them with impunity. It needs scarcely any evidence to prove that the day was intended for exercise, and the night for repose; yet many persons, forgetting that this is the order of nature, endeavor to what is familiarly called "turn day into night." The votary of pleasure retires to his couch frequently after sunrise, and the university student, not unfrequently, remains poring over his books all night, abridging the amount of repose which is necessary to recruit the exhausted energies of his brain. The result of this bad custom is sooner or later severely felt; study becomes more and more difficult, and, at last, impossible. The overworked brain can toil no longer; its intimate structure gives way, and the most distressing symptoms—extreme debility of body, and prostration of mind, ensue. Many of the most talented and promising young men in our universities, have thus fallen victims to their not having properly disciplined the hours of their sleep. That night cannot, with impunity, be converted into day, has been proved by a variety of observations. Two colonels of horse in the French army had much disputed, which period of the twenty-four hours was fittest for marching and for repose; and it being an interesting question in a military point of view, they obtained leave from the commanding officer to try the following experiment. One of them, although it was in the heat of summer, marched in the day and rested at night, and arrived at the end of a march of six hundred miles without the loss of either men or horses; but the other, who thought it would be less fatiguing to march in the cool of the evening and part of the night, than in the heat of the day, at the end of the same march had lost most of his horses and some of his men. Another remarkable circumstance has been observed. It is more unhealthy to get up before

the sun has risen, and burn candles until daylight, than it is to sit up by candle-light after sunset. "I have no doubt," says Sir John Sinclair, "of the superior healthiness, in the winter time, of rising by daylight, and using candle-light at the close of day, instead of rising by candle-light and using it some hours before daylight approaches."

But, it may be said, "All this is very well," Mr. Philosopher, "but supposing that we cannot sleep, and that with all appliances and means to boot, we toss about our bed, beat our pillow, and adjust and readjust our bed-clothes, counterpane, blankets, and sheets, in vain. What then is to be done?" Our answer is, emphatically, avoid having recourse to narcotics, for although they may produce a temporary repose, the sleep will not be refreshing, and the following morning the deleterious effects, whether of opium or henbane, will still linger in the system. We believe, speaking generally, that the more the mind can be brought to dwell on any single impression, the sooner the attention will be fatigued, and sleep induced. It is upon this principle that monotonous sounds produce sleep; but other sensations, monotonously excited and repeated, produce the same effect. A common blister, by fatiguing the attention, often brings on sleep; so also will frictions, particularly along the course of the spine. It is a common practice with Spanish women to put their children to sleep by rubbing the spine along the vertebræ of the back. It is quite certain, also, that the waving of the hands before the face and body during the operation of animal magnetism produces a very profound sleep, followed by hysterical symptoms which are sometimes extremely perplexing. "We have seen boys at school," says Dr. Binns, "fall asleep by fixing their eyes steadily on a candle, or a hole in the shutter." A few years ago a Mr. Gardner, in London, professed to have dis-

covered the art of teaching people to procure sound and refreshing sleep at will, and among the number of his converts was Dr. Binns, just quoted, who gives the following description of this mysterious process. The sleepless sufferer having duly tossed about his bed, as restless and unanchored as a ship at sea, is directed to "turn on his right side, place his head comfortably on the pillow, so that it exactly occupies the angle, a line drawn from the head to the shoulder would form, and then slightly closing his lips, take rather a full inspiration, breathing as much as he possibly can through the nostrils. This, however, is not absolutely necessary, as some persons breathe always through their mouths during sleep, and rest as sound as those who do not. Having taken a full inspiration, the lungs are then to be left to their own action—that is, the respiration is not to be accelerated or retarded too much, but a very full inspiration must be taken. The attention must now be fixed upon the action in which the patient is engaged. He must depict to himself that he *sees* the breath passing from his nostrils in a continuous stream, and the very instant he brings his mind to conceive this, apart from all other ideas, consciousness and memory depart; imagination slumbers; fancy becomes dormant; thought ceases; and sleep supervenes. It will happen, sometimes, that the patient does not succeed on the first attempt, but he must not be discouraged. Let him persevere in taking full inspirations and expirations without attempting to count them, for if he does the act of numeration will keep him awake; and even should he not succeed in inducing very sound sleep, he will, at least, fall into that state of pleasing delirium which is the precursor of repose, and which is scarcely inferior to it. Many trials have satisfied us of this." We do not pledge ourselves, be it observed, for the success of this experiment, which re-

minds us of an observation once made to us by a poor lunatic. "Ah!" said he, "every thing is now done by steam; we live by steam,—breathe by steam,—and pray by steam, which is the reason that my aunt, who is a very devout woman, although she robbed me of my snuff-box, has a turn-up nose. The steam, always ascending, gave it an upward twist." Poor fellow! he was full of fancies; and we can easily conceive that if any person *could* (which is the difficulty) exhaust his attention by watching his own breathing until it emitted visible steam, he would fall into a sound slumber long before the phenomenon became apparent. The best preparatives for sleep at night are healthy exercise and occupation—bodily and mental, during the day—but it should be remembered that over-fatigue produces a state of irritability and restlessness. Once, however, asleep, wrapt in deep unconscious slumber, how is it that we again awake?

This, we apprehend, may be accounted for in the following manner:—As we have already endeavored to explain, sleep arises from exhaustion of the nervous energy; and when, during repose, it is re-generated in sufficient abundance, the nerves are stimulated to renewed action. Hence, in the early part of the night, our sleep is more profound than it is afterwards; it becomes lighter and lighter as this nervous power is gradually restored, until at length we are awakened by its stimulus. Ought then a person who is in a natural, placid and profound sleep, to be unnecessarily awakened? As a general rule, we think not. We conceive that sleep is a provision of Nature to restore the exhausted energies of the animal system—physical and mental—and as such it should be dealt with kindly, gently, and gratefully. The mind, too, as Sir Thomas Browne premised, should compose and prepare itself for slumber by proper

discipline; "the virtuous thoughts of the day lay up good treasures for the night." But we are now touching on the land of Dream, and must pause ere we venture to explore its mysteries. We shall return to it anon; and then, as we draw aside the curtain, it will be made manifest that "Our life is twofold—Sleep hath its own World."

The Chemistry of a Pint of Beer.

AT a late meeting of a very useful little Metropolitan Mechanics' Institution, which it is not necessary to our present purpose to name, a discourse on the subject above mentioned was delivered by Mr. James Saunders, practical plumber and glazier, amateur chemist and natural philosopher.

Mr. Saunders commenced his lecture by observing, that much ado was being made just now about the Papal Aggression. This remark might appear foreign to his subject, but, in fact, led up to it; for the Pope of Rome had occasioned a fermentation in this country; and without fermentation there could be no such thing as that which he was about to have the pleasure of discussing—a pint of beer. He should say no more on the fermentation caused by the Pope, except that he hoped it would be followed by the usual results of that process as observed in brewing—a sinking of the dregs; a going off of flighty volatile gas; and strength communicated to the good stuff in the barrel.

"For many of the observations I'm about to make, Ladies and Gentlemen," continued Mr. Saunders, "I shall have to apply to my notes; for which I'm beholden to our worthy Doctor, who is now amongst us; and I hope he'll

excuse me for any mistakes I may make in pronouncing some of his words.

"In the first place, what is a pint of beer? 'Twopence,' says some of you, 'and a deal too much!' That's not the question. There's a great many beers. There's porter, there's heavy, or brown stout, and there's strong beer, and ales of ever so many sorts, and, then, there's swipes Which is it to be? Well; please to take beer as meaning malt liquor in general—a fermented drink made out of malt and hops. In a chemical sense, it don't much matter what tap it is. Here I may be asked, perhaps, what chemistry has to do with beer? Every thing. Brewing's a regular chemical operation. Of course, I haven't time to go into the whole art and mystery of brewing. I sha'nt attempt more than to give you some sort of notion of the science of that beautiful process. Well; now then we'll begin by inquiring what beer is made of?

"The answer most of you would make to this question, I take it, would be, 'Malt, hops, and water.' Some would add, perhaps, 'and a little isinglass, for finings.' That's what it ought to be made of, to be sure. But there's more things in ale and beer, ladies and gentlemen, than is dreamt of in your society—However, let us take beer as brewed simply of water, malt, and hops—what you may call Utopian Entire; though, mind, 'tis in the power of all of us to realize this salubrious and agreeable beverage, if so be as we've got the means, and will take the trouble ourselves, for to brew the same.

"We'll say, then, that beer is made of malt, hops, and water. Very good. But now comes another query. What is water, and hops, and malt made of?

"First, what is water made of? Ah!—there was a time when heads, with big wigs on 'em, would have been

shook at me for asking that question. I should have been thought mad—perhaps worse. But we live in better times, thanks be. You've been told afore, most of you, no doubt, that water, when quite neat, which you can't get, except by distilling of it, is made of oxygen and hydrogen, which are two sorts of gas; that is, when separated one from the other, as can be done by galvanism and other ways and means, and collected apart. Rain-water, fresh from the clouds, contains a little fixed air besides; the same air that comes out of soda-water and ginger beer: what they call carbonic acid; namely, carbon, the same thing as charcoal, turned into gas by being combined, as the word is, with oxygen. What river-water contains depends a good deal on what goes into the river; the idea whereof may be left to imagination, with the hope it won't disorder the stomach. Same with well-water drawn from nigh sewers and churchyards. Besides these things, which have no business in water, both river and well-water contain various salts, more or less. There's carbonate of lime in 'em, carbonate of magnesia, carbonate of potash, now and then sulphate of iron, and so on, according to the soil they run through, or spring out of. Sulphate and carbonate of lime (in other words, plaster of Paris and chalk) cause water to be, what is called, hard; which is bad and wasteful for making tea; but whether it is the worse or no for brewing beer is a dispute among brewers; and who's to decide when brewers disagree? It stands to reason that the quality of the water must have more or less effect upon the quality of beer; so, no doubt, the difference between the beers of different places depends, for one thing, on the kind of water they are brewed from.

"Next, as to the hops. The hop-flower, belonging to the vegetable creation, is made of carbon, oxygen, and hy-

drogen. Besides, there's a bitter extract in it, and likewise a drowsifying sort of principle, something like what there is in opium, called *Humulin*.

"Now for the malt. What is malt? Not many of you, I suppose, are such cockneys as not to know that malt is barley, steeped in water, laid out on a floor, let be there till it is just about to sprout, and then dried on a kiln, at a heat high or low, according to the color you want it to be; pale or amber, or brown. Here begin the chemical manœuvres required to produce a pint of beer. Malting is a process of chemistry that goes on in each grain of barley inside of the husk. What are the chemical ingredients of barley? Carbon, oxygen, hydrogen, and a little nitrogen. Malt has the same. But the difference between barley and malt is, that the carbon, oxygen, and hydrogen in the barley are in the shape of starch; whereas, in the malt they are in the state of sugar. In going to sprout the barley gets sweet, and the starch in it changes into sugar. Both sugar and starch have the same proportions of carbon, oxygen, and hydrogen; twelve of carbon, ten of oxygen, and ten of hydrogen in each —that is to say, water and charcoal. The difference between starch and sugar is thought to depend on the carbon, oxygen, and hydrogen in the one, being ranged together in a different way from what they are in the other. The 'ultimate particles' of carbon, oxygen and hydrogen, being 'ground together,' as the phrase is, in one way, form starch, and in another, sugar. So with gum, and several other things, that have the same elements—as chemists say—and in the same proportions as sugar, but differ from it in look, and taste, and feel, and some other properties. It seems as though, whilst they are the same in point of chemical ingredients, they differ as to chemical texture. So they are the same things in different forms. All these

things turn very easily into sugar. You can make sugar of linen rags, by boiling them gently in oil of vitriol. Dame Nature makes the sugar for us in malting. She always does make sugar in grain for the young sprout to start from. The change of starch into sugar goes by the name of the 'saccharine fermentation;' about which there's a curious fact I have to mention presently.

The rest of the carbon, oxygen, and hydrogen in the malt is in the shape of gum or mucilage, and coloring-matter. In the barley, before it became malt, there was a small quantity of a substance called *diastase*. This contains the other chemical element of things that live and grow; animals plants: nitrogen. There is very little *diastase* in barley; not more than one part in five hundred; but without it the change of starch into sugar could not be set a going.

"Now, Chemistry says, that there are such and such things in malt; but it does not follow that there may not be more. Those niceties in the composition of things that make flavors and perfumes, most of them are not to be laid hold of or shown up by the art and instruments of philosophers, at least at present, and all we know about them, is by their effect on our palates and our noses; as the Doctor says, 'on our gustatory and olfactory nerves.' But, however, all this does not signify for our present purpose; and to understand the chemical part of brewing, we need only look upon malt as so much grain turning into so much sugar.

"Seeing then that we know, in a general way, what water, and malt, and hops, are made of, and that we've got them to make beer with; the question is, how to use them for that important purpose. As I said before, I am not going to describe the process of brewing. Talking as I am to the wives and daughters of England, which latter will, of course, become the former in good time, I should as soon think of

lecturing on the darning of stockings or sewing of buttons on; to say nothing of the *crochet* which is so favorite a fancy just at present. No: I trust that the practice of brewing, and let me add of baking, and of cookery in all its branches, is as familiar to all young ladies as geography, astronomy, and the use of the globes, callisthenic exercises, elocution, dancing, and deportment; and if I pretended to teach them how to brew, the next piece of conceit I should be guilty of, would probably be in the words of my learned friend the Doctor, 'instructing my parent's maternal parent in the art of applying the power of suction, in order to extract the contents of gallinaceous ova.' After which trying quotation, ladies and gentlemen, you'll perhaps allow me to take a sip of a beverage, which by name comes under the head of this discourse; however 'tis only the celebrated Adam's Ale: and no bad thing neither, when genuine, which is hard to get in these times, except in your cottage near a wood, if you happen to be so fortunately situated, in a sanitary point of view."

Having refreshed himself with a glass of water, the lecturer proceeded:—

"The first step in brewing consists in making an infusion of malt. Never mind about the physicky sound of this phrase. In other words, we will say mashing, if you like. But I use it because, in doctors' language, the word infusion means a liquor made by steeping a thing in hot water, to soak the goodness out of it, as counter-distinguished from boiling out the virtue; which last process is called decoction. Infusion is enough to extract the goodness from malt; the goodness being the sweet, or sugar, whereinto the starch of the barley was turned, when it was changed to malt. It is a great point to make the infusion properly. The water ought to be of the right degree of heat, which to

make good beer, in a general way, is one hundred and seventy degrees by Fahrenheit's thermometer to begin with. A mistake in this particular may occasion the beer to turn sour, or become *blinked*, which when it used to be afore the thermometer was known, was often set down to witchcraft by the wisdom of our ancestors, in the times of priestcraft and superstition.

"Water enough to stir and separate the malt, is first poured into a proper vessel—that is, a mash-tub;—the malt is now put into it and stirred about: more water is then added at a greater heat; the mash, or mixture of malt-and-water, is let stand for two hours, at the end of which it is drawn off, and is now called wort, or sweet-wort, in the vulgar tongue, and infusion of malt, or 'solution of the saccharine and extracted matter of malt,' by the learned.

"Now, to make wort it is not necessary that the grain used should all have been malted. About one part of malt mixed with two of raw grain in the mash-tub, will communicate the nature of malt to the whole quantity of goods. The raw grain or barley must be cut into fine meal; meal powdered to dust, does not answer the purpose. This is a curious instance of 'saccharine fermentation,' and is the fact concerning it, that I alluded to just now: how to account for it, nobody knows, I believe, further than that through contact with the sweet of the malt, a movement takes place in the starch of the grain, between its particles of carbon, oxygen, and hydrogen; they altering their places with respect to each other, in such a way as to take that form of vegetable matter which we call sugar. But this is little more than merely stating a circumstance we can't explain.

"The starch in rasped potatoes even, may be turned into sweet or saccharine stuff, in the same way, by means of

mashing or steeping with malt; and then a sort of beer may be made from it, and was made from it, so Mr. Booth says, in his 'Treatise on the Art of Brewing,' published under the superintendence of the Society for the Diffusion of Useful Knowledge. By his account, beer was so brewed from potatoes by a Monsieur Dubrunfaut, a Frenchman; and we are told it 'resembled the beer which is made in Paris.' Perhaps it may resemble, and something more, not a little of the beer that is sold in London, too.

"Brewers seem to approve of brewing from raw grain; though I believe that, on their part, is against the laws, which however don't prevent private persons from so doing, if they choose. But one, who was a tolerable authority on the subject, William Cobbett, doesn't hold with it at all. He says, 'As to using barley in the making of beer, I have given it a full and fair trial, twice over; and I would recommend it to neither rich nor poor. The barley produces *strength*, though nothing like the malt; but the beer is *flat*, even though you use half malt and half barley; and flat beer lies heavy on the stomach, and of course, besides the bad taste, is unwholesome.' Cobbett's 'Cottage Economy,' page 26, paragraph 38. How the truth may be, I can't say; but I can easily understand how the sort of sugar made in the sprouting of a seed, or 'germination,' may yield beer, different in point of taste and flavor from what that does which is produced in the mash-tub; the principles of flavor and taste being so very delicate, and perhaps, also, roasting or drying the malt may have some influence in the same particulars. I should be inclined to apply these remarks, likewise, to beer brewed from sugar and treacle, as it may be, and under certain circumstances is sometimes allowed to be, by the Excise. For the subject of a chemical discourse such beer is just as good beer

as any other, and I've no objection to it whatever, as a lecturer; but, as a consumer, if I am to have a choice, I should say, 'If you please, I should rather prefer the genuine original commodity, provided it's all the same to you.'

"When you have got your wort, or sweet-wort, the next step in brewing is to boil the hops with it: thereby making a decoction of hops in infusion of malt. By this operation you get out the bitter principle of the hop; and there is no chemical change in it requiring particular notice.

"The liquor, strained from the hops, having been brought down in the coolers to the proper temperature, which is about seventy degrees, is now put into the tun-tub. In that respect it undergoes the great change that converts it into beer. This is called fermentation. The process of fermentation is set a-going, as you know, by mixing yeast with the wort.

"Now, for the fermentation to take place, it is necessary, that besides carbon, oxygen, and hydrogen, there should be nitrogen present in the liquor or substance to be fermented. Wort, from the small quantity of nitrogen still left in the malt, may be made to ferment of itself with some trouble; but, to save that, the yeast is mixed with it. Yeast is the froth of a previous fermentation; and contains nitrogen enough to make the fermentation sufficiently quick. It is a sort of stuff in which you see a continual motion is going on. According to the German chemist Liebig, yeast causes fermentation by communicating its own motion, in a mechanical manner, to the particles of carbon, oxygen, and hydrogen, that compose sugar, dissolved in the wort, for instance. The hydrogen and oxygen, in sugar, as I said above, stand, in sugar, each to each, in the proportions of twelve, carbon; ten, hydrogen; and ten, oxygen—though some reckon the two last at eleven. In fermentation these

elements are dislodged, so to speak, from the position they hold, one to another, and then a re-arrangement of them takes place. Part of the carbon of the sugar unites with most of the oxygen so as to form carbonic acid, which flies off in gas. The rest of it combines with all the hydrogen and some of the oxygen, and becomes alcohol or spirit, the production whereof in infusion of malt, converts it into that generous and invigorating beverage on the philosophy of which I have now the honor of addressing you. Alcohol consists of four proportionals of carbon, six of hydrogen, and two of oxygen. The proportions of these elements one to another in sugar and alcohol, as well as other things, are made out by separating one from the other according to art, in ways which it would take too long to describe, called Analysis. Well; you see fermentation is a sort of inward commotion ending in a new constitution; a sort of natural revolution in point of fact. Alcohol is formed in making wine, and all strong drinks, in the same manner as in brewing. A certain quantity of it, perhaps you may know, is even produced in fermenting bread. This is mostly lost in the baking; but some years ago, there was a company formed to supply the public with cheap bread, in the hopes of being enabled to afford to sell it at a lower price by collecting the spirit that is generally wasted. Whereupon a baker, who was up to snuff a great deal more than to chemistry, set up a shop where he professed to sell bread at the same rate as the company, with the gin in it!

"The carbonic acid given off from beer while fermenting, is what makes it so dangerous to go down into vats, and sometimes occasions death by this being done without precaution.

"The proper plan is to send a candle down first; if there is much carbonic acid it puts it out. So, if you let a light down into the tun-tub, over the fermenting liquor.

All the inside of the tub, above the liquor, while it is working, is full of carbonic acid gas; and if you dip a cup into the gas gently, you can ladle it out, and then if you turn the cup upside down over a candle, you extinguish it as completely as if you were to pour water upon it, by that means astonishing the weak minds of spectators in a considerable degree.

"When the froth, or yeast, ceases to be formed on the surface of the liquor in the tun-tub, your wort has become beer, which you allow to get cold, and then put it into the cask or barrel. Here the fermentation still goes slowly on, as is shown by the yeast, that keeps gradually working out of the cask, till all the sugar, or as much of it as can be, is changed into spirit. Beer that tastes sweet, owes its sweetness to containing sugar not decomposed, or changed into spirit. Bottled beer is beer in which the carbonic acid, made by the decomposition of the sugar or other vegetable matter in the beer, is prevented from escaping by being corked down.

"A liquor, to ferment, requires a certain amount of heat, not lower than between fifty-five and sixty-five degrees. It likewise grows hotter during fermentation; and as carbonic acid gas is thrown off at the same time, as from a fire, this makes fermentation seem somewhat like a burning or combustion. Only this, which is called the vinous fermentation, is a sort of burning independent of the air, the oxygen that feeds it being contained in the liquor.

"All fermentation in beer—or wine either—ought to stop with the change of sugar into spirit. But by being exposed to the air, or to the action of electricity, and some other causes, a second fermentation is set up in it. The alcohol takes in oxygen from the air, and is changed into acetic acid, or vinegar. This is the reason why it is so necessary to have beer casks thoroughly air-tight; for

though what is called the acetous fermentation is interesting as a matter of science, to have one's beer turn sour is a great misfortune, in a domestic and economical point of view. What is termed hard beer is beer in which vinegar, or acetic acid, has begun to form.

"Good beer, then, is a mixture of alcohol and water, more or less undecomposed sugar, mucilage, and other extractive matter, carbonic acid, in greater or less quantity, and those delicate principles on which flavor depends, besides the bitter of the hop. To these things there is added coloring-matter, which is given by the malt. In porter this is got by malt that has been roasted almost to charcoal. The carbonic acid in beer is what its briskness depends upon. The little bubbles you see in sparkling ale are composed of this gas, and without it the beer tastes flat. Old beer is beer wherein the vegetable matter has been wholly or mostly decomposed. In mild beer the decomposition has not been quite completed. It is a pleasing relish to a pot of beer to reflect on the chemical facts which that particular taste in it, which you fancy, depends upon.

"So much, ladies and gentlemen, for the chemistry of beer. Now for a word or two about the *druggistry* of it. Instead of malt, sugar, treacle, honey, and other sweet things may be used—though contrary to law in the case of brewers—and are so, I fancy, more or less, without much harm. Wormwood, quassia, and other bitters, may, in like manner, be employed in lieu of hops, without poisoning the consumer. Buckbean, or *Menyanthes trifoliata*, is another substitute—to be marked 'dangerous.' Aloes has likewise been used for the same purpose; but, being physic, I think it had much better be confined to regular medicinal purposes and not used to doctor beer with.

"I won't say, however, that beer may never require a

little doctoring. It is apt to be rather indisposed at times; that is, to turn somewhat sour. When slightly afflicted with this complaint, a few egg shells, which, in fact, are so much chalk, to absorb the acidity, may not be injurious. A little salt is supposed to make beer keep: there can be no great harm in that. Some have given their beer jalap, in the proportion of two or three ounces to twenty barrels; the reason for which proceeding is unknown; it may not do harm; but I don't see that it can do much good. Copperas is used for the sake of giving porter a frothy top. For this purpose, there need not be used more than would lie on a half-crown piece for a barrel. But I, for my part, should be disposed to think that so much copperas as would affect the head of a pot of beer, would be not unlikely also to affect the human stomach; and I would, therefore, prefer not to have any copperas in my beer, if I knew it.

"However, this copperas, or sulphate of iron, is found in a great many springs of water, which the Excise does not prevent brewers from brewing from, although it forbids them to put the same quantity of copperas as what there is in those springs into the common water which they use. But this only proves that the law knows nothing about chemistry; and I'm afraid it don't know much more about philosophy and science of any sort.

"The root of the sweet flag, coriander and caraway seeds, orange-peel, and other aromatics, are also used to give beer that flavor, which, if properly made, it would derive, without any such medical treatment, from malt and hops.

"Lastly, there are drugs which are put into beer merely to increase its fuddling power—*Cocculus Indicus*, *St. Ignatius's Bean*, *Nux Vomica*, or Ratsbane, *Opium* and *Tobacco*. Concerning which, I shall only make the brief

remark, that though in this age of enlightenment and civilization, we must be naturally averse to capital punishments, I wish every brewer who puts any such stuff into his liquor, was condemned to drink his own beer, and nothing else, till he died—which I fancy he would in no very long time.

"I feel that I have not exhausted the subject of beer; but I am afraid I may have exhausted your patience. However, if my discourse has occasioned on your parts a feeling of dryness, the subject of it no doubt will suggest to you a ready means of relieving that uncomfortable sensation."

The lecture of Mr. Saunders was listened to with marked attention by a crowded auditory. At its conclusion, a teetotaller stepped forward, and begged to ask the lecturer's opinion on the relation of beer to health and morality? To which Mr. Saunders replied, that he considered it highly favorable to both, provided moderation—a virtue in itself—was observed in the use thereof. Too much of any good thing was bad; and this remark was as true of tea as of any malt liquor.

The National Doctor.

AMONG the various sciences to which our old friend Mr. Bagges had addicted himself, one, which he cultivated with peculiar diligence, was that of Gastronomy. It is well known that over-application is a frequent cause of injury to health; but, in no instance, perhaps, has it this effect more often than in the study to which Mr. Bagges devoted his peculiar attention. He had been engaged in the prosecution of this pursuit satisfactorily and undisturbedly for some years, when at length, rather on a sudden, he was attacked with heartburn, loss of appetite, and other symptoms of indigestion, combined with weariness, indisposition to exert himself, and depression of spirits. He also experienced unaccountable feelings of coldness and numbness in the extremities, accompanied by prickings as with pins and needles, and occasional cramps. For the relief of these symptoms, which he imagined to proceed from cold, he tried brandy-and-water. Having taken a large and strong tumbler of this agreeable medicine, he went to bed, hoping to rise all right again the next day. Instead of that, however, Mr. Bagges awoke about two o'clock in the morning with

an intolerable pain in the ball of the great toe; a sensation which, as he afterwards said, he could compare to nothing but to what he might imagine would be the torture of a bunyon under hydraulic pressure. Daylight discovered the part affected to be somewhat swollen, and to exhibit a slight redness on its surface. Mr. Labell, the doctor, was sent for: the fact was, in short, that Mr. Bagges had got the gout.

Mr. Bagges had his foot wrapped in flannel, bathed in hot water and in cold, leeched two or three times, and blistered once; he once dosed with antimony, opium, ether, ammonia, and ipecacuanha; and, finally, with colchicum. At last he recovered; in consequence of which of the above measures and remedies, or whether or not in spite of each or all of them, it is difficult to say. But gout is strong in its attachments. It seldom loses sight of an acquaintance once contracted. Regularly every year did gout attentively return and look in upon Mr. Bagges, as punctual and as welcome a visitor as the collector of the income-tax. With the disease came Mr. Labell, the doctor, and a course of treatment so very similar to persecution as, rather than even the sufferings of the malady itself, to entitle our friend to be canonized as "a martyr to the gout."

A long course of prosperity in a business which consisted in selling medicines under the pretence of treating disease, at length enabled Mr. Labell to retire from practice; and when Mr. Bagges had his next fit of the gout, it was necessary for him to choose another medical attendant. His choice lighted on a practitioner, by some years Mr. Labell's junior, a gentleman whom he had occasionally met at the Royal Institution on a Friday evening, and who had obliged him by explaining to him portions of lectures which he did not comprehend, and had made an especial

impression upon him by the recapitulation, with explanatory remarks, of an interesting discourse on physiology. Under the hands of Mr. Newby, the duration of the disorder was much less than it had ever been previously; and the patient was soon enabled to celebrate a happy recovery by a moderate dinner, to which, with many acknowledgments, he invited his physician. In the course of the evening the conversation turned on the subject of his recent illness.

"Well, doctor," said Mr. Bagges, "thanks to you—now don't be modest; I will say thanks to you: this last attack is the shortest I ever had. Eh? but now, this is contrary to your usual experience, is it not? Gout, I thought—gout—the oftener it repeated its visit, the longer it stopped with you, eh?"

"Why, Mr. Bagges," replied Newby, "that is true enough in a general way. But the stay of gout, like that of most guests, depends on its reception."

"Well, I must say," observed Mr. Bagges, "that you made me receive my guest in a most inhospitable manner this time, with your—what?—antiphlo—"

"Gistic," Mr. Newby suggested.

"Antiphlo—" Mr. Bagges repeated. "gistic regimen. Labell used to say,—'Live?—oh! live pretty much as usual. Take your—what?—your pint of port a day. Don't eat curry—I should say curry was a bad thing.' Eh? now do you consider curry a bad thing?"

"A capital thing," answered Newby, "for the gout—but not, exactly, for the patient. With regard to curry, I should say Mr. Labell's advice was judicious."

"Well," continued Mr. Bagges, "I was not to eat curry; and had better let hashed venison alone, and avoid any thing rich and high-seasoned, and pastry—certainly not touch pastry. 'That's all,' he would say, 'Bagges, my boy;

only lay your foot up in flannel, apply this, that, or the other lotion, fomentation, liniment, leeches—what not—and take the medicine, I shall send.' But you—now, you put me on what I should certainly call short commons. You didn't starve me!—No: I don't mean to say that; but you did—yes, you did stop the supplies to a very great extent."

"That was quite constitutional, sir," urged Mr. Newby.

"Yes, it was perfectly constitutional—quite parliamentary, considering the crisis. But, is there no certain cure for gout—no medicine—no recipe or prescription in particular? Those pills of yours gave me miraculous ease."

"There is none, Mr. Bagges, or your own recovery should have been more rapid. Neither for gout, sir, nor, strictly speaking, for any other disease. There are one or two disorders in which the conditions are pretty uniform, and which are, therefore, generally removable by the same means. But even those are, in some cases, so complicated with other ailments as to call for additional treatment. Bark and quinine, for instance, are said to cure ague, and, practically speaking, so they do usually; but still, they cannot be depended on alone in that disorder. However, for by far the greater majority of diseases, there is no such a thing at all as a special remedy; and the treatment has to be varied in each according to the circumstances. In the next case of gout that I may have to treat, I may find my patient with a dry skin, and may have to take measures for procuring perspiration. In yours, I found the liver inactive. It was necessary to cause that organ to perform its function; and for that purpose I gave you a mercurial. These pills you seem so grateful to. So the relief afforded in one case by blue-pill, or calomel, might be derived in another, from ipecacuanha, or antimony, or from a steam-bath without any medicine at all."

"Or a stiff tumbler of hot grog, eh?" suggested Mr. Bagges.

"Not impossible," replied Newby, "hazardous as the remedy would be."

"Punch cures the gout, you know, the song says, as well as the colic—eh?—and the phthisic," reasoned Mr. Bagges.

"Well," said the medical man, "probably it is as likely to do so as any other specific."

"But what do you mean, then," demanded Mr. Bagges, "by the cure of a disease? I always thought that the medicine you gave acted by destroying the disease—neutralizing some poison in the system—eh?—as an acid does an alkali—at all events putting a stop to the complaint."

"Curing a disease," answered Mr. Newby, "on our part, means, literally, taking care of it. It is nature that cures in the sense of healing. All that we do, or can do, is to influence and regulate the natural operations. But now, what do you imagine a disease to be?"

"Eh?" answered Mr. Bagges, "why I should say—some morbid principle in the system—a certain noxious something—"

"No, sir," said Newby; "that is just where you are wrong, and where the generality of the British public, and too many members, perhaps, of the British faculty, are wrong too. A disease is not a something."

"It can't be a nothing," Mr. Bagges argued. "Gout, now—the deuce!—do you call that nothing?"

"What I mean," explained Mr. Newby, "is, that a disease is not a particular thing, but a state of things. People are apt to speak of it as a substance or essence, a sort of being, comparable to a fiend or demon in possession of the human body; and they look on the doctor as a species of conjurer—"

"When, very often," interposed Mr. Bagges, "that is just what he is not."

"Or exorcist," continued Mr. Newby, "who casts out the evil spirit by the aid of certain drugs. Now diseases are processes—not individualities. There are certain processes, you know, that necessarily take place in the human body."

"Digestion, for example," remarked Mr. Bagges.

"Yes!—digestion; the conversion of food into chyme, of chyme into chyle, of chyle into blood; the respiration and the aëration of the blood; the circulation of this blood; the extraction from it of various substances by the apparatuses called secreting organs; the deposition of new flesh, and absorption of the old; and so on. These are the *ordinary* processes of life. Disease is an *extra*-ordinary process.

"Well, it *is* extraordinary. It is *very* extraordinary that we poor mortals should be subjected to disease," Mr. Bagges moralized.

"Disease, however, has an object; and, as perhaps I could show you, a beneficent one, Mr. Bagges. I said it was an extraordinary process. It is not one which occurs regularly, as a matter of course; certain circumstances are required to give rise to it. What are these circumstances —that is to say, the causes of disease? Why, sir, they are exposure to cold, for instance; breathing bad air; habitual contact with deleterious sustances; eating unwholesome food; partaking too copiously, Mr. Bagges, of food and drink, which may be harmless in themselves. I might add, sedentary occupations, mental emotions, and a variety of causes; all of which, however, may be classed under one general head of injuries."

"What injury can affect the child who is born diseased?" inquired Mr. Bagges.

"Injury, the effects of which are transmitted by one or both of his parents," replied Newby; "and, therefore, you see that a man, in impairing his own health, may inflict a wrong upon his offspring."

"Eh?—the deuce—yes—to be sure!" said Mr. Bagges.

"Disease, then," pursued Newby, "is a process occasioned by injury. Now, what I am going to say may appear a truism; but no matter. Disease cannot take place in the dead subject."

"Well," Mr. Bagges said, "I certainly should have supposed we wanted no ghost from the grave—eh?—or the anatomical theatre—to tell us that."

"No! And yet decomposition takes place in the lifeless body. What is the difference between decomposition and disease?"

"Ahem!" was the reply of Mr. Bagges.

"Why, decomposition is a merely chemical process, and simply destructive. Whereas disease is a vital process—one to which life, mark you, is essential."

"Humph!"

"Moreover, it is not one of mere destruction."

"Ha!"

"Let us," continued Mr. Newby, "consider a single bodily injury, and its result. We will take a case in which we can see what takes place with our eyes. Say a burn. Apply the actual cautery to a dead body, and you only burn a hole in it; nothing ensues. But suppose I apply a hot poker to a given portion of your exterior."

"No, I thank you!" cried Mr. Bagges, instinctively rubbing himself.

"Were I," Newby proceeded, "to perpetrate this outrage, I should do something more than occasion a breach of the integrity of Mr. Bagges's surface. Redness and swelling,

accompanied with pain and heat, would—after the immediate sensation from the burn had subsided—make their appearance around the seat of injury. In short, inflammation would take place, and would continue to exist for some time. In the meanwhile, the hole would gradually fill with new flesh, and would ultimately skin over; and so the inflammation would end. Take the case of a wound, instead of a burn: let it be a cut finger. Here you have inflammation occurring, too, to a smaller extent, to be sure: but still it does occur; and its occurrence is necessary to the healing of the wound. A sort of living glue is poured out on the cut surface. It is shed from the mouths of minute blood-vessels, it joins the divided parts, and, at length, becomes a firm, fleshy substance; a live patch: what, in short, we call a scar. The inflammation results in forming this glue. Therefore we call it adhesive inflammation. It is also called healthy inflammation, to distinguish it from other inflammations which do not end so favorably. But, if this same inflammation happen in parts important to life, as those contained in the chest or abdomen, it is regarded as a disease. So it is if it take place in the eye—for instance, on the colored part of the eye, termed the iris, where the adhesive matter, if poured out, might close the hole in the iris, called the pupil, and thus blind the patient. In fact, adhesive inflammation is disease in its simplest form."

"Disease?" said Mr. Bagges; "but, if I understand you, the tendency of the inflammation is to heal."

"Precisely so; and in the simplest form of disease we see a process, excited by injury, the effect of which is to repair that injury. But other processes, admitted on all hands to be diseases, are as obviously remedial. The voracious consumption of unripe fruit, you know, Mr. Bagges, will afflict young gentlemen with a painful ailment, which,

however, is evidently an effort of Nature to expel the cause of irritation. Many cutaneous eruptions are known to be salutary; and even a fit of the gout, as you may have heard, sir, and perhaps experienced, acts often as a kind of clearance to the system. Indeed the nature of all disease appears, so far as we can determine it, to be, essentially, reaction against injury. But this reaction may be too powerful, or too weak; it may be impeded, or perverted, or disturbed, or protracted, by a variety of causes; and then our professional interference, Mr. Bagges, becomes necessary."

"With your pills, and powders, and draughts, and mixtures, et cetera?" interposed Mr. Bagges.

"With means and appliances such as you mention," said Mr. Newby, and some others. And for what purpose? We shall see. Let us go back to the case of the cut finger. The simple inflammation arising from that injury requires no treatment beyond what is barely protective. The finger is merely bound up and it heals; the inflammatory process is confined to the wound, and terminates of itself. But the inflammation consequent on the wound may be more than simple. The cut may fester instead of healing. The inflammation may run up the arm, and in place of forming adhesive matter, pass through various stages, which I need not describe, except as dangerous and unpleasant. What occasions the inflammatory process to assume this character —that of what is termed unhealthy inflammation? The circumstance, we discover on inquiry to be, that there is something wrong in the system: generally that some organ, the office of which is to purify it of refuse matter, is not doing its duty. Medicine is given, or means are taken to make that organ perform its function: and this object accomplished, the inflammation subsides. The action of a few blue pills and black draughts, for example, may be

sufficient to subdue it, and reduce it to the simple form, and this quite independently of any local treatment beyond enveloping the limb in a pulp of bread and warm water."

"Commonly called a poultice," Mr. Bagges supplied.

"Even so. Now, in the case just supposed, the medicine, you see, Mr. Bagges, did not directly stop the inflammation. It acted by removing certain conditions—torpidity, we will say, of the liver, and other organs therewith connected—and then the inflammation ceased. And by far the greater number of diseases, sir, are to be cured by the mere removal of these and similar conditions; indeed, by no more than rectifying the digestive apparatus, and causing its dependencies to execute a sort of vital sewage and drainage. Our most numerous bodily injuries are inflicted by ourselves through excesses and errors of diet. Mischief most frequently enters the human body through the mouth. The frame is thus overloaded with superfluities, or tainted with impurities, and these are the most general causes of disease, and they aggravate and prolong diseases that originate otherwise. This fact in part explains the success of quack medicines. Most of these compounds increase the action of the cleansing organs. Out of a hundred patients taken indiscriminately, a large per centage would probably derive relief from any medicine having that action. So much testimony is safe for Dr. Gullaway's pills. A few grains of calomel and colocynth from the honest druggist's would have answered better, perhaps; but this is not known, or not considered. Dr. Gullaway puffs and advertises his successes—with additions and embellishments, of course. Experience vouches for pills in some degree, and then Credulity gulps them to any extent."

"Now disease," said Mr. Bagges, "according to you, is—that is, in great measure—a what?—a salutary effort of

Nature. Well—eh?—how do you make that out in diseases that arise from too much eating and drinking? Indigestion, for instance."

"Indigestion," answered Mr. Newby, "is so far salutary, that it involves a resistance, on the part of the digestive organs, to their farther abuse. But excess does not produce serious disease of the stomach and viscera in the first instance. It disorders those organs, perhaps; and their disorder occasions disease in a distant part—even as far away as the great toe, possibly, you know, Mr. Bagges; but thus the more important organs are relieved. It is a fact, that internal disorder is often remedied by breakings out, and other diseases of the skin, or by the formation of sores on the limbs. And if we get the sore to heal, or subdue the eruption, by merely local means, we do it at the risk of causing inward disease. So, when we have to deal with these outward ailments, we proceed, not against them, directly, but against the conditions of body which they arise from, and in regard to which they are a sort of vents and safety-valves."

"Eh! but disease, then, seems to be so good a thing that one would think it ought sometimes to be rather encouraged," Mr. Bagges remarked.

"Certainly: that is what we do when we 'bring an inflammation to a head,' or when, in the cold stage of a fever, we try to induce the hot. Sometimes we have to assist the process of disease, sometimes to restrain it; at others—and I think at most—to give it free scope, content to act merely as Nature's dustmen, and brush impediments out of her way. Shakspeare talks of 'the natural gates and alleys of the body.' We are little better than porters to the gates, Mr. Bagges; we are not much more, sir, than men that sweep the alleys."

"Nature!" exclaimed Mr. Bagges; "Nature! Well—certainly—there is nothing like studying Nature."

"Particularly in medicine," said Newby. "Many important measures of practice are suggested by hints from Nature. Nature bleeds—from the nose. She blisters—in throwing out an eruption. She establishes an issue when she forms an ulcer."

"You don't believe," said Mr. Bagges, "in specifics—or that particular medicines cure particular diseases? But—eh?—but what, then, *is* the action of medicines?"

"They act," replied Newby, "on special organs or tissues; and so far they exert a specific action. Some, for instance, promote the function of the skin, some of the liver, some of the kidneys. Others stimulate the brain and nervous system, or the stomach, or the heart and arteries. The use of medicines is, to act on those organs in such a manner as to produce the conditions of the body required for the favorable termination of the disease, and in some cases to moderate or check the diseased process when it is going too far."

"Then—now—suppose any one ask you what is good for a cough?"

"He asks me," Newby replied, "a foolish question. Antimonial wine may be good. Salts and senna may be good. Dover's powder may be good. Sulphuric acid may be good. Opium may be good. Water-gruel may be good. A rump steak, and a bottle of stout may be good—according to the different conditions of particular organs, or of the whole system."

"And yet," said Mr. Bagges, "you see, people in general think that each disease has its remedy—just as a poison has its antidote."

"A notion which is the foundation of quackery, both in

the profession and out of it; out of it by inducing faith in infallible pills, and so forth—in it by encouraging medical men to administer drugs for the relief of mere symptoms, withot regard to their causes. It also degrades their profession in the opinion of the public, causing it to be looked upon as consisting merely in the remembrance and application of a catalogue of recipes. Moreover it deludes patients into the belief that they may be cured by drugs, independently of any regulation of their habits, and makes them think slightly of honest practitioners, who tell them that this cannot be done."

"You seem to think a good deal of diet and exercise, eh?"

"Diet alone, will often suffice to remove impediments to cure; and when it does, it is better, than medicine. Exercise acts as a downright stimulant to the skin, and the other cleansing organs. Hence your fox-hunter is enabled to eat and drink considerably more than your philosopher."

"You can't pursue science on quite so much beef and ale, as you can a fox, eh?"

"Decidedly not, Mr. Bagges."

"In regulating the functions,—eh?—of the different organs of the body—by medicines, and regimen, consists the art of medicine, then?" Mr. Bagges inquired.

"Mainly," answered Newby. "But we have some remedies which are not medicines, baths, for instance, although these act medicinally. Then we sometimes regulate the circulation by bleeding; and then there is the great principle of counter-irritation."

"What is that?" inquired Mr. Bagges.

"Why, creating a disease—an inflammation—by blistering, or similar means—in an unimportant part, near to, or connected with, an important part. By a law of Nature,

the diseased action is transferred from the latter to the former. As, from the inside of a joint to the skin on the outside of it, or from the lungs to the exterior of the chest."

"Now, what do you think of homœopathy?" Mr. Bagges demanded.

"I think," Newby replied, "that it is a fine satire on the drugging system of practice. Part of the homœopathic treatment is dietetic. Diet alone will cure very many diseases. The vulgar—the great vulgar, sir, as well as the small—see the cures apparently affected by homœopathy; and, in keeping with their general reasoning on medical matters, refer them to the wrong cause—the homœopathy instead of the diet. Homœopathy is merely a system of treating diseases without medicines."

"You think nothing, then, of the infini—what?—tesimal doses?"

"Pooh! We are all continually taking infinitesimal doses. A druggist's apprentice is inhaling and absorbing them, from all manner of medicines, all day. If they cure diseases by their power of producing similar diseases, what a state every such unfortunate youth ought to be in! But I am open to conviction, sir. Take a hundred patients or so, with similar ailments. Put them all on the same regimen. Give one fifty homœopathic globules, and the other globules of bread. Lead them all to imagine that they are being treated homœopathically. Repeat this experiment a dozen times, and if a plain preponderance of cures can be shown on the side of the first fifty, I will believe in the globules. But I think I may venture to add, I will also eat my boots."

"It is a sad thing that there should be so much quackery," Mr. Bagges remarked—"eh?—and that Government should grant patents for quack medicines! If the medicines

do good in some cases—why, in others, patients may take the wrong, or die from quacking themselves, instead of resorting to proper advice—eh? And then only to think of the mischief done in the nursery—by mistakes with your Daffy, and your Dalby, and your Godfrey. How—just for the sake of a little revenue—can Government sanction such—what?—such mischievous imposture?"

"From an utter contempt of medical science, and a total disregard of the rights of the medical profession, Mr. Bagges, in which society acquiesces."

"But now, is society altogether to blame?"

"No, sir. We are partly to blame ourselves for not having disclosed to society the true nature of our science. We ought to have told society long ago what I have just been trying to tell you."

"Well," said Mr. Bagges, "let us hope the world will get wiser by and by with respect to medical matters. And now—if you'll allow me one glass more—we'll drink 'Physic'—I mean 'Success to Physic,'—and then we'll ring for the tea."

Somnambulism.

THAT a person deeply immersed in thought, should, like Dominie Sampson, walk along in a state of "prodigious" unconsciousness, excites no surprise, from the frequency of the occurrence; but that any one should, when fast asleep, go through a series of complicated actions which seem to demand the assistance of the senses while closed against ordinary external impressions, is, indeed, marvellous. Less to account for this mysterious state of being, than to arrange such a series of facts as may help further inquiry into the subject, we have assembled several curious circumstances regarding somnambulism.

Not many years ago a case occurred at the Police-office at Southwark, of a woman who was charged with robbing a man while he was walking in his sleep during the daytime along High Street, in the Borough, when it was proved in evidence that he was in the habit of walking in his somnambulic fits through crowded thoroughfares. He was a plasterer by trade, and it was stated in court that it was not an uncommon thing for him to fall asleep while at work on the scaffold, yet he never met with any accident, and would

answer questions put to him as if he were awake. In like manner, we are informed that Dr. Haycock, the Professor of Medicine at Oxford, would, in a fit of somnabulism, preach an eloquent discourse; and some of the sermons of a lady who was in the habit of preaching in her sleep have been deemed worthy of publication.

We remember meeting with a case of an Italian servant, who was a somnambulist, and who enjoyed the character of being a better waiter when he was asleep than when he was awake. Every book on the subject repeats the anecdote which has been recorded of the blind poet, Dr. Blacklock, who, on one occasion, rose from his bed, to which he had retired at an early hour, came into the room where his family were assembled, conversed with them, afterwards entertained them with a pleasant song, and then retired to his bed; and when he awoke had not the least recollection of what he had done. Here, however, on the very threshold of the mystery, we meet with this difficulty —were these persons, when they performed the actions described, partially awake, or were they really in a state of profound sleep? In solving this problem, we shall proceed to consider some of the phenomena of somnambulism, premising only that if we avail ourselves of cases which the reader may before have met with, it is to throw light on what we may perhaps call the physiology of this very curious affection.

There can be no doubt that somnambulism is hereditary. Horstius mentions three brothers, who were affected with it at the same period; and Dr. Willis knew a whole family subject to it. It is considered by all medical men as a peculiar form of disease. It seldom manifests itself before the age of six, and scarcely ever continues beyound the sixtieth year. It depends physically upon the susceptibility

or delicacy of the nervous system; and on this account females are more liable to it than males; and in youth it manifests itself more frequently than in mature age. It is caused mentally by any violent and profound emotion; as well as by excessive study, and over fatiguing the intellectual faculties. Some persons walk periodically in their sleep; the fit returns at stated intervals—perhaps two or three times only in a month. It has been also observed—although we by no means vouch for the fact—by an eminent German physician, that some persons walk at the full, others at the new moon, but especially at its changes. One German authority—Burdach—goes the comical length of asserting that the propensity of somnambulists to walk on the roofs of houses is owing to the attraction of the moon, and that they have a peculiar pleasure in contemplating the moon, even in the daytime. Whatever may be the cause of the affection, somnambulism undoubtedly assumes different degrees of intensity. The first degree evinces itself by the movements we have referred to, and by sleep-talking. This stage is said to be marked by an impossibility of opening the eyes, which are as if glued together. There are many curious circumstances to be observed concerning sleep-talking. The intonation of the voice differs from the waking state, and persons for the most part express themselves with unusual facility.

We were acquainted with a young lady accustomed to sit up in bed and recite poetry in her sleep, whose mother assured us that she sometimes took cognizance of circumstances which she could not, in any way, account for. On one occasion they had been to a ball; and, after the daughter was in bed and asleep, her mother went quietly into her room, and taking away her dress and gloves deposited them in another room. Presently, as usual, the fair somnambule

began talking in her sleep; her mother entered, as usual, into conversation with her; and, at length, asked, "But what have you done with your new ball-dress?" "Why, you know," replied she, "you have laid it on the couch in the drawing-room." "Yes," continued the mother, "but your gloves—what have you done with them?" "You know well enough," she answered, in an angry tone, "you have locked them up in your jewel-box." Both answers were correct; and it may here be observed that somnambulists, if equivocated with in conversation, or in any way played upon, will express themselves annoyed, and betray angry feelings. The truthfulness of sleep-talking may, we apprehend, always be relied on. In this state there is no attempt at evasion; no ingenuity exercised to disguise any thing. The master-mind of Shakspeare—which seems to have divined the secrets of Nature, and illustrated scientific principles before they were discovered by philosophers—recognized this fact, in making Iago thus rouse the jealousy of Othello:—

> "There are a kind of men so loose of soul
> That in their sleep will mutter their affairs,—
> One of this kind is Cassio.
> In sleep I heard him say, 'Sweet Desdemona,
> Let us be wary.'"

Hitherto Othello had borne up manfully against the cruel insinuations of Iago—but this sleep revelation "denotes a foregone conclusion, and carries with it irresistible conviction." Upon the same principle, Lord Byron founded the story of "Parisina." Not long ago a robbery was committed in Scotland, which was discovered by one of the guilty parties being overheard muttering some facts connected with it in his sleep. Mental anxiety will, almost at any age, give rise to sleep-talking. The ideas of children

during sleep are often very vivid; nor is there any thing more common than to hear them utter exclamations of distress, connected, particularly, with any fears that may, unwisely, have been impressed on the waking mind. The case of a little girl came lately under our notice, who exhibited the most alarming symptoms during sleep; sobbing and imploring help, under the imagination that she was being pursued by an evil spirit; in consequence of a foolish, fanatical person having frightened her with threats of this description, while the child, before going to bed, was saying her prayers. Very much convulsed inwardly, she was with difficulty awakened, and for some time afterwards remained in a state of agitation bordering on delirium. Assuredly parents cannot be too careful in endeavoring to make very young children go to bed with composed and happy minds, otherwise they know not what hideous phantom may draw aside the curtain of their sleep; and, by terrifying the imagination, produce fits, that may be incurable in after-life. We believe it quite possible that epilepsy, itself, may be so produced.

In schools sleep-talking is very common; anxious pupils, in their sleep, will frequently repeat a lesson they cannot remember when awake. The son of the eminent linguist and commentator, Doctor Adam Clarke, tells us that his father overheard him, in his sleep, repeat a Greek verb which he was endeavoring to learn, and which, the following morning, he was unable to remember. This is a curious fact—he knew his lesson in his sleep, but did not do so when he was awake; the faculty of memory, however, in a state of somnambulism undergoes many singular modifications. Thus, persons who talk in their sleep, may, by conversation, be brought to remember a dream within a dream; and it is very common, in the higher stages of somnambu-

lism, for a person to recollect what happened in the preceding fit, and be unconscious of any interval having elapsed between them. A somnambulist at Berlin, in one of her paroxysms, wandering in her sleep, was guilty of an indiscretion which she had no recollection of in her waking hours; but, when she again became somnambulic, she communicated all the circumstances to her mother. During the next convalescent interval, they again escaped her memory. The case is related, by Treviranus, of a young student who when he fell asleep began to repeat aloud a continuous and connected dream, which began each night precisely where it left off the preceding night. This reminds us of the story of the drunken Porter, who in a fit of intoxication left a parcel at a wrong house: when he became sober he could not recollect where he had left it, but the next time he got drunk he remembered the house, and called and recovered it.

In persons disposed to somnambulism, dreams of a very striking and exciting nature call into action, in the early stage of this affection, the muscles of the voice before those which are implicated in the movement of rising and walking; and it is worthy of notice that the muscles, upon which the voice is dependent, are very numerous and exquisitely delicate: the result of which is, that they are affected by all mental emotions. Hence, the tones of the voice truly indicate the character of certain passions or feelings, for which reason, on the stage, the intonation given by the actor, whether it be the distressed cry of a Belvidera, or the pathetic singing of an Ophelia, will carry along the sympathies of the audience, albeit, the exact words may not be understood. A particular tone of voice causes, without reference to words, a corresponding feeling, just as the vibration of one instrument will harmonize with the vi-

bration of another; but this is not all, the voice is the first organ which is affected by any excitement of the brain. It betrays the wine-bibber having drunk to excess while he is yet perfectly rational; it is, therefore, by no means surprising that persons in their sleep when excited by dreams, should moan, mutter, or even speak articulately. In this state, the mind seems to struggle, in its connection with the body, to give utterance to its emotions; and it is reasonable to believe the greater the intensity of the dream-conception, the clearer will be the articulation of the voice, and the greater, also, the precision of the somnambulic movements. Hence, apparently, it is only in very profound sleep that persons will rise, dress themselves, walk about, &c.; while in less profound sleep, their vivid dreams only agitate and make them restless. One of the most interesting, and indeed affecting, cases on record, is that of Laura Bridgman, who, at a very early age, was afflicted with an inflammatory disease, which ended in the disorganization and loss of the contents of her eyes and ears; in consequence of which calamity she grew up blind, deaf, and dumb. Now, it is quite certain that persons who have once enjoyed the use of their senses, and lost them, have very vivid dreams, in which they recall the impressions of their earliest infancy. So was it with the blind poet, Dr. Blacklock; and so also was it with Laura Bridgman, and it is a very interesting fact that she, being unable to speak, when asleep used the finger alphabet. This she did sometimes in a very confused manner, the irregularity of her finger-signs corresponding with that defective articulation which persons give utterance to, when they murmur and mutter indistinctly their dream-impressions. It was, be it observed, when she was disturbed in her sleep that she ran over her finger alphabet confusedly, like one who, playing on a stringed instrument, has

not the attention sufficiently fixed to give precision and expression to the performance. The minstrel, described by Sir Walter Scott, with his fingers wandering wildly through the strings of his harp, resembles poor Laura giving utterance, thus imperfectly, to her bewildered dreams.

When the somnambulic state becomes more intense, the voluntary muscles of the limbs are excited into action; the somnambulist rises; dresses himself; and in pursuing his dream-imagery, wanders about, or sits down steadily to execute some task, which, however difficult in his waking hours, he now accomplishes with facility. The condition of the body in a physiological point of view becomes now a solemn mystery: the eyes are open, but insensible to light; the portals of the ears, also, but the report of a pistol will, in some cases, not rouse the sense of hearing; the sense of smell, too, is frequently strangely altered, and that of taste likewise becomes perverted, or, perhaps, entirely suspended. The sensibility of the surface of the body is often remarkably impaired; and, for the time, partially, or entirely abolished. In the case of a female somnambulist described in "The Philosophy of Natural History," by Dr. Smellie, he tells us that, when she was in one of her paroxysms, he ran a pin repeatedly into her arm—but not a muscle moved, nor was any symptom of pain discoverable. Here we may observe an important and interesting fact, that, as a general principle, in proportion as the mind concentrates its powers and energies within itself, the sensibility of the body diminishes. The soldier, in his excitement on the battle-field, feels not his wounds; he will faint from loss of blood before he knows that he has been "hit." The unconsciousness of danger is often the best protection against it. On looking down a precipice, a sense of apprehension instantly suggests itself; the nervous system recoils; the

circulation of the blood within the brain on a sudden becomes irregular; dizziness ensues, and a total loss of command over the voluntary muscles. Man is probably the only being in whom this occurs; the stag, the goat, the antelope, will gaze unmoved down the chasms of the deepest Alpine precipices. The dizziness which is felt on ascending an elevation, arises undoubtedly from mental alarm, which modifies the impressions received by the eye, which no longer correctly estimates the relations of distance. Accordingly we are told by Mr. Wilkinson in his "Tour to the British Mountains," that a blind man, who was the scientific and philosophic Mr. Gough, ascended with him to the summit of one of the Cumberland Mountains; and in walking along, he described to him the fearful precipices which he pretended surrounded him; but soon he repented his inventive picturesque description, for the blind man, mentally affected by the supposed peril of his situation, became suddenly dizzy, and screaming with the apprehension that he was tumbling down the rocks into the abyss below, fell upon the ground. In cases of sleep-walking upon dangerous heights, there is no apprehension or fear—the mind is intently absorbed in the object pursued; all the muscular movements are performed with confidence and with unerring precision; and under these circumstances the gravitation of the body is supported on the most slender basis.

One of the most curious and indeed inexplicable phenomena connected with somnambulism is, that persons in this condition are said to derive a knowledge of surrounding objects independent of the organs of the external senses. The Archbishop of Bourdeaux attested the case of a young ecclesiastic, who was in the habit of getting up during the night in a state of somnambulism, taking pen, ink, and paper, and composing and writing sermons. When he had finished

one page he would read aloud what he had written, and correct it. In order to ascertain whether the somnambulist made any use of his eyes, the archbishop held a piece of pasteboard under his chin to prevent his seeing the paper, upon which he was writing; but he continued to write on without being in the least degree incommoded. He also, in this state, copied out pieces of music, and when it happened that the words were written in too large a character, and did not stand over the corresponding notes, he perceived his error, blotted them out, and wrote them over again with great exactness. A somnambulist is mentioned by Gassendi, who used to dress himself in his sleep, go down into the cellar, draw wine from a cask in perfect darkness—but if he awoke in the cellar, he had then a difficulty in groping his way through the passage back to his bedroom. The state of the eyes during somnambulism is found to vary considerably—they are sometimes closed—sometimes half closed—and frequently quite open; the pupil is sometimes widely dilated, sometimes contracted, sometimes natural, and for the most part insensible to light. This, however, is not always the case. The servant girl, whose case was so well described by Dr. Dyce, of Aberdeen, when this state was impending felt drowsy—a pain in the head, usually slight, but on one occasion very intense, then succeeded—and afterwards a cloudiness or mistiness came over her eyes. Occasionally her sensations were highly acute; the eyelids appeared shut, though not entirely closed; the pupils were much contracted, and there was great intolerance of light. She could not name objects when the light of the candle or fire shone fully on them, but pointed them out correctly in the shade, or when they were dimly illuminated. At other times, however, the pupil of the eye was quite insensible to light. Her feelings

also appear to have been very excitable. During one of her paroxysms she was taken to church; attended to the service with every appearance of devotion, and was at one time so much affected by the sermon, that she shed tears. The sensibility of the eye was also observed, in the case of Dr. Bilden; when a degree of light, so slight as not to affect the experimenter, was directed to the lids of this somnambulist, it caused a shock equal to that of electricity, and induced him to exclaim, "Why do you wish to shoot me in the eyes?" These are exceptions; as a general rule, the eye during somnambulism is insensible, and the pupil will not contract, though the most vivid flash of light be directed upon it. It also should be observed that although somnambulists will light a candle, it does not follow that they are guided by its light; or that they really see any thing by it. Their movements may still be purely automatic. This curious circumstance is finely illustrated by Shakspeare, who describes the Lady Macbeth walking in her sleep with a lighted taper in her hand:—

"*Gentlewoman.*—Lo, yon, here she comes. This is her very guise, and upon my life, fast asleep.

"*Doctor.*—How came she by that light?

"*Gentlewoman.*—Why, it stood by her. She has light by her continually—'tis her command.

"*Doctor.*—You see her eyes are open.

"*Gentlewoman.*—Aye—but their sense is shut."

It is related of Negretti, a sleep-walker, that he would sometimes carry about with him a candle as if to give him light in his employment; but on a bottle being substituted, he took it and carried it, fancying that it was a candle. Castelli, another somnambulist, was found by Dr. Soane translating Italian into French, and looking out the words in his dictionary His candle being purposely extinguished,

he immediately began groping about, as if in the dark, and although other candles were in the room, he did not resume his occupation until he had relighted his candle at the fire. In this case we may observe that he could not see, excepting with the candle he had himself lighted, and he was insensible to every other, excepting that on which his attention was fixed.

How are these curious anomalies to be explained There is, it appears to us, a striking analogy between the actions as they are performed by the blind and those executed by somnambulists, who are insensible to light; the exaltation of the sense of touch, in blindness, is so great that some physiologists have conceived the existence of a *sixth* sense—the muscular sense—which communicates the impression before the actual contact of objects. This muscular sense is supposed by Dr. Fowler to adjust the voice, the eye, and the ear, to the distances at which sounds are to be heard, and objects seen. It may, perhaps, be described as a peculiar exaltation of the sense of feeling. A lady during her somnambulism, observed to Despine, her physician, "You think that I do not know what is passing around me; but you are mistaken. I see nothing; but I *feel* something that makes an impression on me, which I cannot explain." Another somnambulist, a patient of Hufeland, used to say invariably, "I feel"—"I am conscious" of the existence of this or that object. The blind girl, Jane Sullivan, described by Dr. Fowler, could, without a guide, feel her way to every part of the workhouse, and recognize all its inmates by the feel of their hand and clothes. It is said of Laura Bridgman, that she could, in walking through a passage, with her hands spread before her, recognize her companions, and could in this way distinguish even their different degrees of intellect; nay, that she would regard

with contempt a new-comer after discovering her weakness of mind. It has been also observed, that the pupils in the Manchester Asylum for the blind are aware, by this muscular sense, of their approach, even to a lamp-post, before actually coming against or up to it. May not the somnambulist walking through intricate passages and performing complicated manual operations in the dark have his movements guided by this sense? May he not, in like manner, be sensible of his approach to obstructing obstacles, and may not this sense, in a higher degree of development, lead to perceptions, which are ordinarily conveyed to the mind through their appropriate and respective organs?

The sense of hearing in somnambulism is not often suspended, for, generally speaking, somnambulists will answer questions and carry on conversation; but it is remarkable that the same ear which may be deaf to the loudest noises, will perceive even a whisper from one particular person with whom the sleeper may alone appear to hold communion. In the "Transactions of the Medical Society" at Breslau, we meet with the case of a somnambulist who did not even hear the report of a pistol fired close to him. In another instance, that of Signor Augustin, an Italian nobleman, his servants could not arouse him from his sleep by any description of noise—even blowing a trumpet in his ear. On the other hand, the same individual would, in another paroxysm, apply his ear to the key-hole of the door, and listen attentively to noises which he heard in the kitchen. The sense of smell, as we have observed, is frequently altered. Brimstone and phosphorus are said to have a pleasant scent to the somnambulist, but sometimes it appears completely abolished. In one case, a snuff-box, filled with coffee, was given to a somnambulist, who took it as he would have taken snuff, without perceiving the differ-

ence. So also is it with taste. Some somnambulists have not been able to distinguish wine from water.

Another very remarkable circumstance has been observed in somnambulism; it is, that persons in this state have exhibited an extraordinary exaltation of knowledge. Two females mentioned by Bertrand, expressed themselves, during the paroxysms, very distinctly in Latin; although they afterwards admitted having an imperfect acquaintance with this language. An ignorant servant girl, described by Dr. Dewar, evinced an astonishing knowledge of astronomy and geography, and expressed herself in her own language in a manner which, though often ludicrous, showed an understanding of the subject. It was afterwards discovered that her notions on these subjects had been derived from hearing a tutor giving instructions to the young people of the family. A woman in the Infirmary of Edinburgh, on account of an affection of this kind, during her somnambulism, mimicked the manner of the physicians, and repeated correctly some of their prescriptions in the Latin language. Many of these apparent wonders are referable to the circumstance of old associations being vividly recalled to the mind; this very frequently happens also in the delirium of fever. There is nothing miraculous in such cases, although upon them are founded a host of stories descriptive of persons in their sleep speaking unknown languages, predicting future events, and being suddenly possessed of inspiration.

Not only are the mental powers intensified in this state, but the physical energies are unwontedly increased. Horstius relates the case of a young nobleman living in the Citadel of Breslau, who used to steal out of his window during his sleep, muffled up in a cloak, and, by great muscular exertion, ascend the roof of the building where, one night, he tore in pieces a magpie's nest, wrapped up the little ones in

his cloak, and then returned to bed; and, on the following morning, related the circumstance as having occurred in a dream, nor could he be persuaded of its reality until the magpies in the cloak were shown to him. In the "Bibliothèque de Médecine" we find the account of a somnambulist who got out of his bed in the middle of the night and went into a neighboring house which was in ruins, and of which the bare walls, with a few insecure rafters running between them, alone remained; nevertheless he climbed to the top of the wall, and clambered about from one beam to another without once missing his hold. It is affirmed that somnambulists will maintain their footing in the most perilous situations with perfect safety, so long as they remain in a state of somnambulism; but when they are disturbed or awakened in such positions, they are then taken by surprise, and instantly lose self-possession. A young lady was observed at Dresden walking one night in her sleep upon the roof of a house; an alarm being given, crowds of people assembled in the street, and beds and mattresses were laid upon the ground, in the hope of saving her life in case of her falling. Unconscious of danger, the poor girl advanced to the very edge of the roof, smiling and bowing to the multitude, below, and occasionally arranging her hair and her dress. The spectators watched her with great anxiety. After moving along thus unconcernedly for some time, she proceeded towards the window from which she had made her exit. A light had been placed in it by her distressed family; but the moment she approached it, she started, and suddenly awakening, fell into the street, and was killed on the spot. Upon this incident Bellini founded the charming opera of "La Somnambula."

The actions of the somnambulist are, doubtless, prompted and governed by those dream-impulses which the ima-

ginary incidents passing through the sleeper's mind suggest. He is a dreamer able to act his dreams. This we learn from those exceptional cases in which the somnambulist, upon awaking, has remembered the details of his dreams; in illustration of which we find an anecdote, related with much vivacity by Brillat-Savarin, in the "Physiology of Taste." The narrator is a M. Duhagel, who was the proprietor of a Carthusian Monastery, and he thus tells us the story:—"We had in the monastery in which I was formerly prior, a monk of melancholic temperament and sombre character, who was known to be a somnambulist. He would sometimes, in his fits, go out of his cell and return into it directly; but at other times he would wander about until it became necessary to guide him back again. Medical advice was sought, and various remedies administered, under which the paroxysms so much diminished in frequency, that we at length ceased to think about them. One night, not having retired to bed at my usual hour, I was seated at my desk occupied in examining some papers, when the door of the apartment, which I never kept locked, opened, and I beheld the monk enter in a state of profound somnambulism. His eyes were open, but fixed; and he had only his night-shirt on; in one hand he held his cell-lamp, in his other, a long and sharp-bladed knife. He then advanced to my bed, upon reaching which he put down the lamp, and felt and patted it with his hand, to satisfy himself he was right, and then plunged the knife, as if through my body, violently through the bed-clothes, piercing even the mat which supplied with us the place of a mattress. Having done this, he again took up his lamp and turned round to retrace his steps, when I observed that his countenance, which was before contracted and frowning, was lighted up with a peculiar expression of satisfaction at the

imaginary blow he had struck. The light of the two lamps burning on my desk did not attract his notice; slowly and steadily he walked back, carefully opening and shutting the double door of my apartment, and quietly retired to his cell. You may imagine the state of my feelings while I watched this terrible apparition; I shuddered with horror at beholding the danger I had escaped, and offered up my prayers and thanksgiving to the Almighty; but it was utterly impossible for me to close my eyes for the remainder of the night.

"The next morning I sent for the somnambulist, and asked him, without any apparent emotion, of what he had dreamt the preceding night? He was agitated at the question, and answered, 'Father—I had a dream so strange, that it would give me the deepest pain were I to relate it to you.' 'But I command you to do so; a dream is involuntary; it is a mere illusion,' said I, 'tell it me without reserve.' 'Father,' continued he, 'no sooner had I fallen asleep than I dreamt that you had killed my mother, and I thought her outraged spirit appeared before me, demanding satisfaction for the horrid deed. At beholding this, I was transported with such fury, that—so it seemed to me—I hurried, like a madman, into your apartment, and, finding you in bed there, murdered you with a knife. Thereupon I awoke in a fright, horrified at having made such an attempt, and then thanked God it was only a dream, and that so great a crime had not been committed.' 'The act has been commited,' I then observed, 'further than you suppose.' And thereupon I related what passed, exhibiting at the same time the cuts intended to be inflicted upon me which had penetrated the bed-clothes; upon which the monk fell prostrate at my feet, weeping and sobbing, and imploring to know what act of penance I should sentence

him to undergo. 'None; none!' I exclaimed. 'I would not punish you for an involuntary act; but I will dispense with your performing in the holy offices at night for the future; and I give you notice that the door of your cell shall be bolted on the outside when you retire, every evening, and not opened until we assemble to our family matins at break of day.'"

Here we may recur to the question with which we set out:—where persons in somnambulism are partially awake, or in a state of unusually and preternaturally profound sleep? The phenomena we have above referred to—particularly those connected with the insensibility of the body and the organs of the senses—lead us to believe, that in somnambulism there is an increased intensity of sleep, producing an extreme degree of unconsciousness in regard to the physical organization, very similar to that which we find in hysterical, cataleptic, and many other nervous affections. The mental phenomena exhibited in this state are those connected with exaggerated dreams, and as the physiology of dreams is by no means well understood in the healthy state, still less can they be explained under the aspect of disease.

It may be asked, How somnambulism, being an affection likely to entail more serious diseases upon persons subject to it, is to be cured? When the general health is affected, the family doctor, we apprehend, will very speedily put an end to the metaphysical mystery; but in young persons, even where it is hereditary, attention must be paid to diet, regimen, and a due amount of bodily exercise. The shower-bath has sometimes been found serviceable. It is thought, also, that it may be resisted by a strong effort of the will, inasmuch as, in young persons, it has been suppressed by the fear of punishment; but this, on the other

hand, may have a very contrary effect, disturbing and exciting, rather than composing the nervous system. In the North of Scotland the following plan is in some schools adopted. The youthful somnambulist is put to sleep in bed with a companion who is not affected, and the leg of the one boy is linked by a pretty long band of ribbon or tape to the leg of the other. Presently, the one disposed to ramble in sleep gets out of bed, and, in so doing, does not proceed far before he awakens the non-somnambulist, who in resisting being dragged after him, generally throws the other down, which has the effect of awakening him. In this way we have been assured that several such cases have been effectually cured. But is it always safe thus to awake a person during the paroxysm? Macnish relates the case of a lady, who being observed walking in her sleep into the garden, one of the family followed her, and laying hold of her awaked her, when the shock was so great that she fell down insensible, and shortly afterwards expired.

We feel satisfied that all sudden and abrupt transitions should be avoided. The state of sleep, apart from somnambulism, is one of natural repose; the organs of the body have their various functions appropriately modified; and we cannot help thinking that to interrupt abruptly the course of Nature, and throw, as it were, a dazzling light upon the brain, the functions of which are in abeyance, is unwise, and may prove injurious. Many persons suddenly awakened out of a deep sleep, complain afterwards of severe headache. We may conceive, therefore, that somnambulists who may be considered in a state of preternaturally profound sleep, ought not to be forcibly awakened. It is true that some somnambulists, like the servant girl described by Doctor Fleming, above referred to, have been

awakened without after ill consequence, but as a general rule, the nervous system ought not to be subjected to any rude or unnecessary shock. The management of, and treatment of the somnambulist, must, it is obvious, depend very much on age, sex, temperament, and upon the causes in particular,—whether physical or mental,—to which the affection may be ascribed. The most interesting circumstance connected with somnambulism is, that it brings palpably under our observation a preternatural state of being, in which the body is seen moving about, executing a variety of complicated actions, in the condition, physically, of a living automaton, while the lamp of the human soul is burning inwardly, as it were, with increased intensity; and this very exaltation of the mental faculties proves incontestably, that the mind is independent of the body, and has an existence in a world peculiar to itself.

The World of Water.

OUT of the crowd of London we must get, if it be only for a day, and take a walk by the sea-side. The water sparkles; the warm sun has caused all parasols to open from their bud, and with raised stalks they blossom gorgeously. For the last ten minutes a stout gentleman's head has floated like a black buoy on the surface of the tide. There is a fish-woman;—do you know what fish is in season? Fish, no doubt, get tired of the monotony of sea, and come to the coast-side at their own fashionable times, when they are netted now and then by fishermen. We also go to the sea-side, and accept the bait of indefatigable fishers after men, the lodging-house proprietors;—for families of fish in *their* season, or of Londoners in theirs, alike are skinned and dished. Some of the fish must travel many miles to get a sniff of shore air, and they surely have no railways in the ocean. All the land in the world, I have been told at school, would barely cover the Pacific. Twenty-seven miles of water in the world, for every ten miles of land. What a wilderness that is for a sprat to lose his way in!

Wilderness?—not at all. We talk about the watery

waste, as if it were just a salt desert,—very useful as a highway to the nations, but in itself a barren surface of salt water, playing pitch and toss with ships, to the distress of passengers. The fact is, that not only does the bed of the sea consist of hills and dales, springs, mountains and volcanoes, differing from our own only in the character of their abundant vegetation,—not only are these hills and plains peopled with forms innumerable, but, in the great flood above, zone over zone of water teems with life. One set of marine animals peoples the region between high and low water mark, and declines to mix with the creatures of the sphere immediately below, which again keep up their position in an equally exclusive manner. So there are ten such zones to pass before you touch ground in deep water, just as in a thoroughly enlightened county town there may be ten sets, each to itself a world, between the squire with his right foot on the carriage step, and the laborer with his right foot on a spade. If the expanse of the sea be vast, vast also is the variety of its inhabitants; fishes, crustaceans, mollusca, polyps, and yet more,—classes, genera, and species,—each individual almost incredibly fecund. The spawn of a single adult oyster will supply twelve thousand barrels. In the Arctic Sea the water is for hundreds of miles colored olive green by little entomostraca, the whale's food. Scoresby calculated that there were twenty-three thousand, eight hundred and eighty-eight million million of them in a cubic mile; of course their zone, however, is not a mile deep. Life in "the ocean wave" is gayer when we come between the tropics. In the narrative of the exploring "Voyage of the Fly" among the coral reefs northeast of Australia, there is a quaint illustration of this, not less quaint to the unscientific reader for the number of strange names with which he is perplexed: "A block of coral rock,

that was brought up by a fish-hook from the bottom at one of our anchorages, was interesting from the vast variety and abundance of animal life there was about it. It was a mere worn dead fragment, but its surface was covered with brown, crimson, and yellow nulliporæ, many small actiniæ, and soft branching corallines, sheets of flustra and eschara, and delicate reteporæ, looking like beautiful lace-work carved in ivory. There was several small sponges and alcyonia, seaweeds, of two or three species, two species of comatula, and one of ophiura of the most delecate colors and markings, and many small, flat, round corals, something like nummulites in external appearance. On breaking into the block, boring-shells of several species were found buried in it; tubes formed by annelida pierced it in all directions, many still containing their inhabitants, while two or three worms, or nereis, lay twisted in and out among its hollows and recesses, in which, likewise, were three small species of crabs." What do you say to that? A London lodging-house during the height of the Exhibition season is not by a quarter so well crammed. "This block," says Mr. Jukes, "was not above a foot in diameter, and was a perfect museum in itself, while its outside glared with beauty from the many sprightly and variously colored animals and plants. It was by no means a solitary instance; every block that could be procured from the bottom, in from ten to twenty fathoms, was like it." The blocks themselves, too, it must be remembered, were in the first instance built by little members of the vast and industrious community which swarms within the crystal palace of the sea.

An argument to the stomach is at all times so satisfactory, that one has only to remind the rich of callipash and callipee as sea-begotten; to allude to turbot, one has only to suggest to humbler appetites,

"The periwinkle, prawn, the cockle and the shrimp."

One has only to say to the collective hunger of the nation, "Oyster! lobster!" and at once the sea is acknowledged to be, not a desert, but appears green and refreshing in all eyes, and will bear description as a highly valuable tract of pasture-ground. We were in the neighborhood of Australia just now. As we are on the way, perhaps you will not object to step down to the South Pole for a minute, or at least to the vicinity of the great Southern Continent, visited lately by our Phantom Ship. Cold water is to be found in perfection near that great refrigerator, and from thence it flows in a vast ocean river towards the Equator. Now starting from the icy shores of South Victoria, let us, like good, quiet beings, travel with the stream.

What causes the stream, though? That is soon told. Water at the Poles is cold enough to ice Champagne, and at the Equator it is nearly warm enough for shaving. Water expands when warmed; our pots boil over; and although the ocean certainly is nowhere hot enough to boil a leg of mutton, the great mass of water rises under influence of tropic heat above the common level, and runs over towards the Poles, leaving its place empty for cold water to rush in and occupy. Precisely in the same way, air, which is another ocean, swells at the Equator, and pours out its deluge north and south over the colder current which runs in to take advantage of the vacancy, and warm itself. When warm, it will also get up. That is one fact: another modifies it. The earth rolls on its axis. If you stick a knitting-needle through the centre of an orange, and rotate the orange on the needle, then you see a model of the earth rotating on its axis. The needle comes out of the north pole above, and out of the south pole below; and, if you scratch a line all round the orange, half-way between pole and pole, that is the imagined line called the Equator. Now, take two little

pins; stick one of them on the equator, and another in the neighborhood of either pole; set the orange now revolving like the globe itself, from west to east, and make precisely one revolution. In the same space of time one pin has travelled through a great space, you perceive; all around the orange as it were: while the pin near the pole has had a very tiny journey to perform, and on the pole itself would absolutely not revolve at all. So, then, upon this world of ours, every thing on or near the equator, spins round in the twenty-four hours far more rapidly than any thing placed near the Poles. But every thing partakes in the movement; as you share in your body the movement of a railway train, let the train stop suddenly, your body travels on and throws you violently forward. So air and water, flowing from the Equator in great currents, because they cannot at once accommodate themselves to the slower movement of the earth as they approach the Poles, retain their go-ahead propensity, and shoot on eastward still, as well as north and south. The slow trains coming up from the Poles are outstripped by the rapid movement of the earth below, and, being unable to accommodate themselves to it readily, they lag behind and fall into a westward course. By this movement of the earth, therefore, a transverse direction is communicated to the great equatorial and polar currents, whether of air or of water. Furthermore, local peculiarities, arrangements of islands and continents, plain and mountain, land and water, cause local variations of temperature, and every such variation modifies or makes a current. In the air, we all know how many shiftings of the wind will be peculiar to a mountain hamlet, where a lake, a valley, and a mountain cause a constant oscillation, and a sudden burst of sunshine is enough to raise the wind. Mechanical obstructions, such as mountain peaks in the bed of the great ocean of air,

modify its streams, of course; and the great currents in the world of water are, of course, split, deflected, and directed on their way, by all the continents and islands about and around which they flow.

Great currents pour like mighty rivers through the plain of ocean, and fixed by the laws of nature, though their banks be banks of water, they are almost as sharply defined as if they were of granite masonry. These are constant; there are others periodical, occasioned by periodical winds, tides, &c.; and there are also variable currents caused by melting ice, and other accidents, irregular in their occurrence.

Now let us follow the great stream of cold water flowing from the South Pole, called the Antarctic drift current. From the great barrier of ice and the Antarctic volcano, Mount Erebus, it pours up the Pacific, first in a north-northeasterly direction, then northeast, then more decidedly towards the east, partly, perhaps, deflected into this course by the land of South Victoria; eastward, at any rate, it flows in a salt-water river of enormous breadth, and strikes the Pacific coast of South America, wearing its side into that hollow shape which you may notice on the map. The obstruction of the South American continent splits this great current into two parts, one of which turns southward, washing round Cape Horn; the Cape Horn current, which escapes into the Atlantic Ocean;—the other, the Peruvian or Humboldt's current, is diverted upwards along the shores of Chili and Peru. Between these two parts, a large body of the southern stream which has not reached the continent is turned back, in about twenty-six degrees latitude, and ninety degrees longitude, to form the southern part of the great equatorial current, into which the mass of water flowing northward up the shores of South America will also be deflected presently.

The current northward, Humboldt's, coasting the continent from Valparaiso to near Guyaquil, has not lost, even under the Equator, all its frost. It turns at Punta Pariña, before reaching Guyaquil, surrounds the Gallapagos Islands on the Equator itself, and pulls their temperature down ten degrees; then it flows on westward with the great equatorial stream, assisted by the winds. In the desert of Lower Peru, at a few feet above the water, the cold occasioned by this polar current is quite unmistakable, and, at one season of the year, it yields up fogs for months, at Lima, called the Garua, which make the morning sun look like a moon, vanish soon after mid-day, and leave heavy dews at night. Ships on the coast, especially between Pisco and Lima, can take no observation of the shore, and the current, hurried on by the impediment it meets, frequently carries them beyond their destination. Sixteen hundred miles from Valparaiso to Callao, wind and current favoring, will be an eight or nine days' sail; but from Callao back to Valparaiso it is a voyage frequently of weeks or months.

The great equatorial current, flowing westward, contains the whole of the Antarctic drift, except so much of it as slipped out of the Pacific round Cape Horn, fed, of course, by currents from the North Pole also. This mighty mass of water, occupying a third part of the distance from Pole to Pole, runs through the great sieve of islands between Australia and China, part of it being also deflected northward in a warm current along the southeastern borders of Japan.

Now we will follow it into the Indian Ocean; but before leaving the Pacific, we may make note of a fact, that the advantage of steam over sailing-vessels is nowhere so enormous as it must be on the coast of Chili and Peru. A steamer leaving Guyaquil four weeks after a sailing-vessel, can reach Lima first.

The currents in the Indian Ocean are inextricably complicated with the winds; and if the winds expect attention just at present, they may whistle for it. It is enough to say that the great equatorial stream still pouring westward strikes against the coast of Africa, and finding that it has no thoroughfare, pours southward on each side of Madagascar, and doubles the Cape in the Agulhas or Cape current, outside which a counter-current flows back out of the Atlantic. The stream of water having passed the Cape, turns northward, is deflected by the shape of the land between Benin and Sierra Leone, not from the land, but from the edge of a returning stream that coasts it. It is to be remembered, also, that it follows its own bent in this deflection, flowing westward, as the main equatorial current, with a speed of, in some places, thirty, and in some places seventy-eight, miles a day. After giving off a northwest branch, and having a temperature now of seventy-nine degrees under the Equator, the main current strikes the east prominence of South America, at Cape St. Roque. This causes it to split. A southerly branch coasts in the direction of Cape Horn, and goes home to the Pacific, tired of travel; but the rest, pouring along northward, flows through the West India Islands into the Gulf of Mexico, a hollow excavated by its stream. It is of course to be understood that the outline of land is not caused only by the action of the currents; it is determined, also, by the geological character of soil; the loose soils wear away, while rocks oppose a barrier. The West India Islands are nothing more than those hard rocky parts of an old coast-line, which have withstood the constant action of a current which has been at work for ages, eating through the softer parts; so it has made a great bite in the Gulf of Mexico, and left us the West India Islands sprinkled about, as bones that proved too hard for its diges-

tion. In the Gulf of Mexico, encompassed by land, the water, which has for a long time been acquiring warmth, offers the greatest contrast to the frosty state in which it set out on its journey. Near the mouth of the Mississippi its temperature reaches eighty-nine degrees. If you have a thermometer which enables you to warm a little water to that point, you have only to put your finger into the warm water, and so accurately feel how far we are now from the gnawing cold of the South Pole. As the stream flows constantly into the Gulf, it must, of course, also constantly flow out. It flows out between Florida and Cuba, being now called the gulf-stream. This coasts northward, having a cold counter-current between it and the shore, and crosses the Atlantic south of the great bank of Newfoundland, most of it turning southward to return by a set of counter-currents home. A branch from it, Rennel's Current, touches the Irish coast, and makes a circuit in the Bay of Biscay, sending a weak offshoot on its passage up the Irish Channel. Thus a drop of water from the South Pole, travelling by the extensive route we have just indicated, may be shaken from the head of the stout gentleman, who at last consents to get into his bathing machine.

Little less interesting than Harvey's old disovery of the circulation of the blood, is this discovery which has been made piecemeal in our own day of the circulation of the water. Though the great system is not yet anatomized in all its parts—and we are puzzled, for example, here and there with portions of a vein or counter-current not yet properly accounted for—still we have laid bare the main artery, and found the water's heart in the great Southern Ocean. It is there, not only because the intense cold of the south polar continent determines action in that direction; but because there is there also a wide expanse of sea

—the widest on the globe—susceptible of all impressions. The Pacific is full of natural breakwaters, reefs, shoals, and islands. At the North Pole, though there is indeed no continent, but water, at the Pole itself, the lands of Europe, Asia, and America, destroy the general expanse. In the enormous reservoir of water which surrounds the lofty continent of the South Pole we find the heart of the great circulating system; and not only do the grandest ocean currents take their rise in it, but in it, also, as we shall see presently, commences the pulsation of the tidal wave.

You observe that the great world of water serves not only as a home for countless forms of life, but that to us land creatures it serves also as an apparatus for the regulation of our climates. Cold currents come to limit the sun's monarchy, and warm streams flow to melt the icebergs where they travel out of bounds, and to prevent Jack Frost from annexation.

That is not all, nor nearly all. One characteristic of the works of Nature is continually to be recognized. Man makes a beautiful machine, worthy of admiration, in which many wheels and teeth combine, perhaps to make a piece of lace; it will make only lace, and nothing else. The works of nature are, incomparably, more simple, and yet there is nothing so minute as to be created for one purpose only. The earth's axis is inclined a little to one side;—our polar ice, our long days and short days, spring, summer, autumn, winter, with the myriad of phenomena in their train, are the consequence—nor is that all. But we shall have quite enough to do if we confine, at present, our attention to the world of water. It is enough to say, that, in its way, a blade of grass, or lump of dirt, no less than the great sea, heaps use on use, and proof on proof of a Sublime Intelligence.

We may regard the sea, if we like, as a great burial-ground. Subterranean forces, constantly at work, cause gradual, incessant change of level on the surface of our world. We are ourselves born just in time to see the departing peaks of a huge continent now drowned in the Pacific Ocean; where its highest mountain tops, not yet submerged, rise as innumerable islands, around which the coral polyps build. But subterranean forces have a stout ally provided in the busy sea itself. How ocean currents eat away the land, we have already seen; but we have only to look at the coast behind us, and we are reminded that the mere action of the tide* is constantly engaged in chewing away shore, and taking it off, masticated into pulp, to feed the sea's great belly. Rivers, too, wear away the soil through which they rub, and carry seaward a large quantity of land, in the form of that dear pulp for which the great deep hungers. Out of the world of water vapor rises and forms clouds; they float above our fields, and fall as rain, to bless the husbandman, and give food to the mouths of men. But they feed also the great sea; they wash the soil down the mountain sides; and if they do not rise again as vapor, to form new clouds, they form streams and springs, that fertilize the ground, and, at the same time, rub down more soil for the hungry sea. Granite yields. Rain, or the vapor of water, in its pores, expanding and again contracting with the change in temperature, very slightly wears its outer crust; it is just so much loosened that a lichen

* The late Mr. Stephenson, the architect of Skerryvore, stated, at the last meeting of the British Association, that the force of waves is a ton and a half per square foot for the German Ocean, and twice as great for the Atlantic. This estimate was made with reference to the construction of marine works, from results obtained at the Bell Rock and Skerryvore,

fastens. Then the lichen holds more damp upon the stone; the water and the work of vegetation loosen it a little more; so that there presently is soil enough for mosses. Moss invites more water, the stone decays more, and is mingled with decaying vegetable matter; the conversion into loose soil has begun; man will reap profit from it; but, in due time, it will come into the sea. The waste of continents strewed thus over the bottom of the ocean goes to build up, layer upon layer, land that shall hereafter be. So layers under layers tell us of the ages that have past, and yield to our sight skeletons of creatures that have lived a thousand, thousand years ago. Man came, as you know, late into the world; we never dig him up as a contemporary of the creatures that are gone: his bones and his works are being now deposited in the great burial-ground. What fleets have gone down into the deep we know; how many monuments of man are being buried in the mud of our own age, to be dug up, as antiquities, perhaps, when man shall be extinct. It is not easy to imagine one's self a fossil; but the Megalotherium, no doubt, never expected it. An English river being crossed, some centuries ago, by one of our armies, the great military chest, with all its treasure, was upset and drowned; nor was there time to fish it up again. Ten years ago a piece of rock, which seemed to be hard sandstone, found upon that spot, astonished all beholders. In its substance was a store of fossil coins; and, on examination, it turned out that all the sand into which coins had sunk, after the chest rotted, had been quite converted into rock by the chemical action of iron from the hoops with which the chest had been originally bound. Coins thus imbedded have been got up also from the Thames, in London. Of man there is no such record in the geological past; but in the geological future, should the race of anti-

quaries still hold out, there will be joy in digging for him, and for all the produce of his hands, now being locked up carefully beneath the waters of the world.

Some of the lime washed down into the sea is used by countless animals, who make to themselves shells. But it is almost certain that the shells of molluscs and other marine animals do not grow wholly from this scource. It is more likely that the basis of lime, calcium, is not an element, although we call it so, until we know how to resolve it into simpler forms. Probably it is not an element, and is produced by the animals from its constituents existing in sea water. If so, a large part of the shore of Albion has actually once been sea; for our chalk cliffs are nothing less wonderful than an aggregate of myriads on myriads of microscopic beings, whose remains have strewed the bottom of the ocean, and been subsequently lifted up in chalk beds of amazing thickness.

The ocean is not only a destroyer; it contributes of its soil to pile up reefs, until they reach the highest water-mark. It catches nuts and seeds into its currents, and industriously scatters them on foreign shores; it scatters them upon the bald little island, and there soon grows thereupon a busy crop. Busy old ocean seizes a canoe, and carries it upon a current far out of sight of land. "Come with me, good little men and women," roars the old fellow, and he shoots them presently upon the island he has made; and there they live, perforce, and their descendants people it. The sea bore no inactive part, assisted by the trade-wind, in getting over the first ships from Europe to America. These ocean currents play, unobtrusively, a large part in the history of man. But, as Britons, we must leave ourselves a little time to talk about the waves, because they are precisely what "Britannia rules." You know all about the

tides, only as M. Jourdain says of his Latin, we had better "make as if you didn't." The rise of tide is caused, of course, by the attractive forces of the sun and moon, mainly exerted, as we said, on the south polar reservoir. There should be two tides to each luminary, one on its upper and one on its lower transit; four tides a day; but the attraction of the lady moon being, as it ought to be, six times greater than that of the sun, who is a distant gentleman, she reduces the sun's tide to a mere supplement. When the gentleman and lady pull together, then the sun's pull adds one foot of height to every five feet produced by the moon, and makes a spring-tide. When the sun and moon pull in opposite directions, and the sun wants a high tide where the moon wants low water, from every six feet of the moon's tide the sun is able to take one away, and neap-tides are the consequence. The varying elevations of the tide at the same place depending on the varying degree of unanimity between master and mistress in the sky.

In different places, however, the height of the same tide varies considerably—from three inches to thirty feet. This depends on the conformation of the land. The great tide wave, commencing in the Antarctic Ocean, has its whole course directed by the coast lines. It flows into the Indian Ocean, where it finds no northern outlet, and breaks violently on the shores of Hindostan; rushing into the ready mouths of the Ganges, it produces the great bore of the Hoogly. It should flow into the Pacific, but it finds that ocean barricaded by innumerable shoals, islands, and coral reefs; there is no deep, uninterrupted mass of water, and the tidal movement runs weakly up the western coast of America, penetrates not far between New Zealand and Australia, leaving the shores of China and Japan, with the great

mass of the Pacific islands, almost wholly unaffected by the tidal wave. Into the Atlantic it breaks round the southern point of Africa; the wave that struck the south shore of New Zealand washes the Cape fifteen hours afterwards, and passes on up the Atlantic, touching Africa on one side, America upon the other. Deflected variously by the line of coast, after another fifteen hours of travel, it is ready to come down upon Cape Clear. Cape Clear and Land's End are struck by the wave in the next hour, which then communicates its impulse through the Irish and St. George's Channels. The rate of movement of the tide wave depends upon the nature and depth of the sea bottom. With a depth of one fathom, its rate is eight miles an hour, and with one hundred fathoms eighty miles an hour; while through deep water of a thousand fathoms, it is propagated at the speed of about four miles a minute. Thus the same wave which touched Cape Clear, passes, in little more than an hour, on the Atlantic side to touch the Hebrides, yet takes four hours in working up the Irish Channel, only to Dublin. So, also, it is a seven hours' journey for the tide along St. George's Channel from Land's End to London, which is about the time it occupied in travelling from Rio Janeiro to New York. The tide at London is, however, ruled by the stronger wave that has rolled round the Orkneys, and descended thence in about fifteen hours through the German Ocean to reach London Bridge, on the third day after its start from the great southern sea. A glance at the map will show how small a part of the great tidal impulse can be communicated to the Mediterranean through the Straits of Gibraltar; accordingly, we find a tide of only thirteen inches on the northern coast of Africa, near to the Straits, and two, three, four, or five inches in more

protracted parts. The Bristol Channel opens like a funnel, to receive the full shock of the tide wave entering the Irish Sea, and there we have a tide of thirty feet.

What we have said about the Crystal Palace of the sea, may re-assure well-meaning people whom a want of contemplation has betrayed into the fear that we exalt ourselves unduly, in rejoicing at the triumphs of our human handiwork. We have a right so to rejoice, and no man conversant with nature, who permits his heart to warm over the honorable trophy of his race, now raised in London, is at all likely to forget that there is an Architect unutterably above Mr. Paxton. Such notions of comparison could never have occurred to him, were they not first suggested by weak heads that mean well, but think idly.

The tide is breaking very pleasantly upon the shore. You perceive that as the wave runs up to our feet, the lower part of it is retarded by the friction and resistance of the sloping beach, the water on the summit having no such opposition to encounter, shoots ahead; so that the whole wave seems to curl until the upper part is overbalanced, and comes toppling to the ground. It beats air down upon the beach, which soon bursts out again, and makes the music of the breakers.

We have been walking up and down the sunny shore, and gossiping about the world of water, as if storms never blotted its good nature; but the water never storms except when the wind troubles it. Earthquakes disturb its balance, now and then, but air is the arch agitator. Our ocean of water is a peaceful, busy gentleman, who would perform his work like a chronometer if he were not married to an ocean of air, who has the upper hand of him. His wife is fickle; she is kissing him quite prettily to day, to-morrow she may blow him up, and if she do he certainly will foam and fret;

and then, perhaps, she will get up a squall, and he will roar or she will howl, and he will give a sullen growl, and wo be to the ship that interferes too much between the pair while they are quarrelling. On the whole, however, they are certainly a happy couple; and so close is their alliance, and so many are the bonds of sympathy between them, that to understand the water properly, you ought to know his wife. Very well, then; a few pages shall be devoted to the winds.

The Wind and the Rain.

WE can scarcely choose a better time than this for our projected discourse upon the wind and rain. First, because, at about this season of the year, people are usually mounting into hopeful spirits after a tolerable experience of both; and secondly, because the wind has got into some little notoriety of late, for not having blown down Mr. Paxton's Crystal Palace in Hyde Park—which, it appears, it was bound to do, and ought by all means to have done. We have our misgivings that it is equally bound, by the calculations which convict it of this neglect of duty, to blow away any man of ordinary stature who ventures out of doors when the weather is not calm. But, we have too much respect, even for the failings of the wind, to do more than hint at these its little weaknesses.

Indeed, our readers are already so occupied with the wonders and beauties of the great Exhibition, and already read so much about them, that we purposely avoid the subject for the present. Therefore, if our discourse concerned only the grievous default and bankruptcy of the wind in that connection, it would end here, and take its place in literature by the side of Sancho Panza's untold story, and the

condensed Encyclopædia of information which Mr. Dangle ought to have perused in the nod of Lord Burleigh. We have another range before us, however, and proceed.

The clown in "Twelfth Night" might have been a good geologist when he sang—

> "A great while ago the world began,
> With hey, ho, the wind and the rain!"

for the wind and the rain have written illustrated books for this generation, from which it may learn how showers fell, tides ebbed and flowed, and great animals, long extinct, walked up the craggy sides of cliffs, in remote ages. The more we know of Nature, in any of her aspects, the more profound is the interest she offers to us; and even in this atom of knowledge alone, we might surely get something to think about, out of a wet day. We do not defend a wet day. We know that a wet Sunday in a country inn, when the rain falls perseveringly, between the window and the opposite haystack—when rustics lounge under penthouse roofs, or in barn or stable door-ways, festooning their smock-frocks with their pocketed hands, and yawning heavily—when we pity the people sitting at the windows over the way, and think how small and dark their houses look, forgetting that they, probably, pity us too, and think no better of the Griffin, where we have put up—is not promotive of cheerfulness. We know that the same Sunday in a town or city, when pattens go clinking by upon the paving-stones—when dripping umbrellas make a dismal dance all down the street—when the shining policeman stops at the corner to throw the wet off himself, like a water-dog—when all the boys in view go slinking past, depressed, and no boy has the heart to fly over a post—when people wait under the archway, peeping ruefully out at splashed and draggled strag-

glers fagging along under umbrellas: or at other stragglers who, having no umbrellas, are completely varnished from head to foot with rain—when the chimney-smoke and the little church weathercock fly round and round, bewildered to find that the wind is everywhere—when the flat little church bell seems vexed that the people won't come in, and tinkles discontentedly, while the very beadle at the door is quenched and querulous—does not inspire a lively train of thought. Still, without constantly measuring the rain-fall like the enthusiasts who write to the newspapers about it, or without asserting, like the oldest inhabitant (who has never been right in his life since his promotion to that elevation), that it never rained before as it rains now, we may find matter for a few minutes' talk, even in such weather.

It is raining now. Let us try.

The wind to-day is blowing from the northwest, and it flings the rain against our window-panes. That boy, Tom, will be very wet, for he is out in it without an umbrella. Here he comes, glowing like a forge to which the gale has only served as bellows! He enjoys his dripping state, and tells, with enthusiasm, how

> . . . "the wind began again with a burst
> Of rain in my face, and a glad rebound
> From the heart beneath, as if, God speeding me,
> I entered his church-door, Nature leading me."

But we pack him off to change his clothes; and stop his quotation summarily.

We saw, the other day, how winds were caused, like currents of the sea, by inequalities of temperature. The heated air expands near the equator, rises and runs over towards either pole in two grand upper currents, under which there flow from north and south two deluges of colder

air, to occupy the space vacated. These currents do not flow from due north and due south, because, as the earth rolls every day once round itself, from west to east, air that has acquired slow movement at the poles, finds the globe travelling too fast for it at the equator, and is obliged, therefore, to drop more and more behind.

The current from the north becomes a northeast wind; but that from the south is not due south, but southeast. These winds are constant, where there is no local interference, within about twenty-eight degrees on each side of the equator, being, in fact, the northeast and southeast trade-winds. Why do they not blow all the way from pole to tropic?

There, you have the upper current to consider; the hot air that ascended at the equator has been gradually cooling, and becoming therefore denser—heavier—as it ran over the cold current below. The cold air from the pole, too, had been getting warmer, therefore, lighter, on its travel; so that in temperate climates, to which we belong, it becomes a disputable point between the two currents which shall have the upper, which the lower seat. In these regions, therefore, there is no uniform wind; but as the currents from the equator generally succeed in maintaining that it is now their turn to go below, winds from the south prevail outside the trade-winds north of the equator, which are, of course, represented by north winds on the other hemisphere. Southwest and northwest these winds are, because they are fast currents, which started from the earth where it was rapidly revolving, and vote polar regions slow. Winds from the southwest then prevail in Europe; and the southwester now blowing whistles with immoderate exultation at a victory over some polar current with which it has for the last few days been exchanging blows.

Well, you say, there must be a pretty clashing of cymbals when the great trade-winds from the north and south run against one another; and they must do that somewhere near the equator. Yes, the scene of their collision occupies a broad band about six degrees north of the equator, more or less. The trade-winds of the southern hemisphere encroach over the line at all seasons, owing to peculiarities of land and water; but the limits of the trade-winds are not marked out by a fixed straight line. They vary, in extent, with the season, and their outline varies with the nature of the earth or water over which they blow. But, the scene of collision, as we said, forms a broad zone always north of the equator, which is called the zone of the variable winds and calms. Here it is that a great ascending current strikes off the antagonists on either hand; and then if we are in the current, we perceive no wind; and if we hold a lighted candle in the air, its flame ascends unwavering; but a few feet from the ground we can feel nothing of the upward rush which we denominate a calm. With this current rises a vast mass of vapor, and the sun's decline, or a touch from the trade-wind, or the coldness of the upper air, condenses this; and down come sheets of rain, attended with electrical explosions. How the trade-winds, when they come together, twist and twirl, and generally how two winds cause an eddy, and a veering of the weathercock when they come down upon each other, any man may understand who ever sat by a brook-side. Currents of water coming upon each other, round the stones, from different directions, act upon each other just as the air currents act: carving miniature gales and model whirlwinds from a kindred element.

Within this zone of variable winds and calms, vapor ascends perpetually, and rain falls almost every day; the rainy season being distinguished only by a more determined

drench, just as a doctor, paid by items, pours forth more bottles in the season of an epidemic, though he at all times is unmercifully liberal. That vapor rises from water and from every moist body under the influence of heat, any body knows. The greater the heat, the more the vapor; but even in winter, from the surface of an ice-field, vapor rises. The greater the heat, the greater the expansion of the vapor. It is the nature of material things to expand under heat, and to contract under cold; so water does, except in the act of freezing, when for a beneficent purpose it is constituted an exception to the rule. Vapor rises freely from lakes, rivers, and moist land; but most abundantly, of course, it rises from the sea, and nowhere more abundantly than where the sun is hottest. So it rises in the zone of variable winds and calms, abundant, very much expanded, therefore imperceptible. There comes a breath of colder air on the ascending current; its temperature falls; it had contained as much vapor as it would hold in its warm state; when cooled it will not hold so much; the excess, therefore, must part company, and be condensed again; clouds rapidly form, and as the condensation goes on in this region with immense rapidity, down comes the discarded vapor in the original state of water, out of which it had been raised; down it comes, a hogshead in each drop. Sudden precipitation, and the violent rubbing against each other, of two air-currents unequally warmed, developes electricity; and then in this zone you can hear such thunder, and behold such lightning, as we quiet folks at home are never plagued with. We may stop here to remark that in all climates this is the whole theory of rain. Our present weather is sufficient illustration. There was a noisy wind from the southwest this May morning—a wind from the warm regions which has come over the sea loaded with vapor.

Though violent, it felt warm to the face; but in the sky were scattered clouds, and the wind veered frequently towards the north, with sudden showers, one of which pelted upon Tom. It was a contest between the southwest current, and a current from the north, which now and then forced a way down, and, where it did so, cooled the atmosphere, and obliged it to part with some of its vapor, either in the form of clouds or rain. The winds are quiet now, and if you look out, you will see that the fight is over, and the southwest beaten after all its crowing; north wins. You see by the smoke that there is a north wind, which, being a cold polar current, cannot hold, in an expanded state, one half of the vapor brought into our atmosphere by the southwest. The north wind, therefore, marks its victory by a general precipitation; the whole sky is uniformly clouded, and a steady rain falls, and will fall, until the balance is restored. When the north wind has turned out of the sky all the vapor that it cannot manage, we shall have fine weather, until a warm wind interferes. The warm wind, then, must bleed some drops before it gains possession, but, having conquered, will possess a sky containing less than its due quantity of vapor; therefore precipitation will not be continued. The southwest wind, however, soon brings moisture with it; and then, if the noon be fine, clouds form at evening, when the temperature falls, and it may rain at night. Every thing contains its regulated quantity of latent heat—a body in the form of air more than a liquid, and a liquid more than a solid. Latent heat is sensible heat mysteriously transformed, used in the processes of nature, swallowed up, become insensible. Water contains more of this, then, in the state of a thin vapor than in the condensed form. When, therefore, clouds form, heat that was used up and made latent is restored and ren-

dered sensible; that is one reason why cloudy weather is warm. After a shower, the whole earth is moist, and evaporation takes place on the entire surface. Water, to become vapor, seizes, appropriates, and thrusts into the latent form some of the sensible heat lying in its neighborhood, and, therefore, a coolness or a chill succeeds the rain. But there is chill, also, during the rain-fall, when the condensation is at its greatest; how is that? Doubtless you know that air and water conduct heat but badly. You could not heat a tub of water from the top, and the sea retains through all seasons a remarkable imperturbability as to its temperature. So you, or the sun, cannot heat any amount of air from the top; but the sun's rays that reach the earth warm that, and it retains the warmth, and radiates it back again; and so it is the heat of the sun sent from our own earth which fills the air about us. If we walked on such high stilts as to raise our mouths and noses far above the sod, we should be very glad to have our stilts cut shorter; for the radiant heat lessens as we rise from the earth's surface, in proportion no less rapidly than light lessens as we quit a candle; and at any distance from the earth the atmosphere is very cold. So rain descending from the cold heights brings a chill with it. So clouds that cover over the earth and prevent its heat from radiating into space, but rather reflect it back again, act as a blanket does over a man's warm body when he is in bed, and so we have a second reason why it is warm—close—in cloudy weather.

Since water retains in a remarkable degree an even temperature, and land heats and cools in correspondence with all changes of the sun, it follows that where land and water are commingled, inequalities of temperature will be various and frequent; every inequality being the cause of a

wind, and the water supplying copious material for clouds and rain. Therefore our island is so often clouded. Every one who walks by the sea-side, knows the sea-breeze produced by difference of temperature between the land and water. The water being uniform in heat, is colder than the earth during a summer's day, and the air, cooled upon its surface, blows in *from* the sea to fill the space left by the lighter current. But at night the earth has cooled down, till at length the sea is the warmer of the two, and the cold current furnished by the earth blows *to* the sea. The moist wind from the ocean, flowing over the continent, precipitates its moisture near the coasts, especially on steep and rugged hills; so that, far inland, clouded skies are rare. The earth in summer, therefore, lies day after day unsheltered from the sun, and stores up heat continually;—you know the heat of continental summers. In the comparatively cloudless winter nothing impedes radiation—out into space the heat all streams. You know the severe cold of a winter on the Continent. At Astrakhan the summer heat is that of Bordeaux, and fine grapes grow; but the winter cold is below zero.

Rain being elicited by heat from water, will, of course, abound most where the sun is hottest. The average yearly fall of rain between the tropics is ninety-five inches, but in the temperate zone only thirty-five. The greatest rain-fall, however, is precipitated in the shortest time—tropical clouds like to get it over and have done with it. Ninety-five inches fall in eighty days on the equator, while at St. Petersburgh the yearly rain-fall is but seventeen inches, spread over one hundred and sixty-nine days. Again a tropical wet day is not continuously wet. The morning is clear; clouds form about ten o'clock, the rain begins at twelve, and pours till about half-past four; by sunset the

clouds are gone, and the night is invariably fine. That is a tropical day during the rainy season.

What does the "rainy season" mean? At a point twenty-three and a half degrees north of the equator, at the tropic of Cancer, the vertical sun appears to stop when it is midsummer with us. As it moves southward, our summer wanes; it crosses the equator, and appears to travel on until it has reached twenty-three and a half degrees on the other side of the line—the tropic of Capricorn:* then six months have passed, it is midwinter with us and midsummer with people in the southern hemisphere. The sun turns back—(and the word tropic means the place of turning)—retraces its course over the equator, and at the expiration of a twelvemonth is at our tropic again, bringing us summer. Now, the rainy season is produced between the tropics, by the powerful action of the sun, wherever it is nearly vertical, in sucking up vast quantities of vapor, which become condensed in the upper colder regions of the

* The inclination of the earth's axis, to which we have before alluded, is twenty-three and a half degrees. The apparent movement of the sun over the tropics, our long days of summer and long nights of winter, and the whole theory of polar nights and days, can be explained *practically* with the greatest ease. In the evening, let there be only one lamp or candle, which you call the sun. Spit an orange on a knitting needle; put some pins on it for men; hold the needle, your earth's axis, not upright, but let it slant a little; hold your earth, the orange, so that its equator is on the same level with your sun. Keep the axis inclined and fixed always in the same position relative to the walls of the room, while you imitate the earth's yearly course, by a revolution of your orange (always in the same level) round the lamp. Make mimic days and nights, in the mean time, by rolling your earth round upon its axis. Remember that the sun is to men as the lamp might be to your pins, and the rude experiment will be a little volume of astronomy.

atmosphere, and dash to earth again as rain. The rainy season, therefore, follows the sun. When the sun is at or near the tropic of Cancer, both before and after turning, all places near that tropic have their rainy season: when the sun makes a larger angle with their zenith, it has taken the rainy season with it to another place. It is here obvious, that a country between the tropics, and far from each, is passed over by the sun, in its apparent course, at two periods in the same year, with a decided interval between them. It must have, therefore, and does have, two rainy and two dry seasons. The parts of Africa and Asia bordering the northern half of the Indian Ocean are an exception to this rule; and, though in the region of the trade-winds, they are independent of the trade-winds also. A great expanse of water is there placed between two continents, one of which, Asia, stretching to the northeast, is heated during our own summer, and the other, Africa, lies southwest of the water, and is heated when the sun is at the other tropic, and when our regions are cold. The cool current flows over the water into the space left by expanded air in Asia, when that continent is warmed, from April to October, making the southwest monsoon. After October, southern Africa begins her turn of summer, and the monsoon changes with a little conflict in the way of storm and cloud, and the air flows during the other six months to the other continent, creating the northeast monsoon. The end of March and the beginning of April, the end of September and the beginning of October, are the stormy periods of monsoon changing. Water currents are determined by these constant winds, and each monsoon brings a rainy season to the coast on which it blows. The monsoon region extends beyond the coasts of Borneo and Celebes, and on the coasts of China, northward to Japan.

Monsoon is a name drawn from an Arabic word, implying season. Prevalent winds on a smaller scale are determined in many other portions of the globe by local peculiarities of land and sea. Thus the great desert, the Sahara, heated intensely by our summer sun, pours up a current of ascending air, and sucks cool air out of the Mediterranean; on that sea, therefore, in the summer, a north wind prevails, and for the same reason it is easier to sail up than down the Nile.

Let us apply now some of the principles we have discussed. The trade-winds blowing equably, do not deposit much of their vapor while still flowing over the Atlantic. Out at sea it seldom rains within the trade-winds; but when they strike the east coast of America rain falls; and the rain-fall on that coast, within the limits of the trade-winds, is notoriously excessive. The chain of the West India Islands stands ready to take (in the due season) a full dose; the rain-fall at St. Domingo is one hundred and fifty inches. But the winds having traversed the breadth of the continent, deposit their last clouds on the western flanks of the Andes, and there are portions, accordingly, of the western coast on which no season will expend a drop of rain. Thus in Peru it rains once, perhaps, in a man's lifetime; and an old man may tell how once, when he was quite a boy, it thundered. Of the cold Antarctic current slipping by the Peruvian shores, and yielding the thick vapor called the Garua, which serves instead of rain, we have already talked. Upon the table-land of Mexico, in parts of Guatemala and California, for the same reason, rain is very rare. But the grandest rainless districts are those occupied by the great desert of Africa, extending westward over portions of Arabia and Persia, to a desert province of the Belooches; districts presently con-

tinued in the heart of Asia over the great desert of Gobi, the table-land of Tibet, and part of Mongolia. In all these, are five or six millions of square miles of land that never taste a shower. Elsewhere the whole bulk of water that falls annually in the shape of rain, is calculated at seven hundred and sixty millions of millions of tuns.

In equalizing temperature, in wafting clouds over the land, and causing them to break and fall in fertilizing showers, in creating and fostering the art of navigation, by which man is civilized, the winds perform good service. Their pure current washes out the stagnant exhalations from our homes, our fields, our persons; breaks the ripe seed from the tree, and sows it at a distance from its parent plant, where it may grow in the free air not overshadowed. Without winds, winter would be one monotony of frost, and summer one monotony of sun. The crisp snow, and the woolly clouds, the delightful rustle of the summer forest, and the waving of the autumn corn, the glory of the sunset, and the wonder of the rainbow,—the world would have wanted these had not the winds been taught to do their Master's bidding. After all, wind and rain prove more than the necessity of carrying umbrellas. And, after all, Tom was not stupid, when he rejoiced in telling how—

> "the wind began again with a burst
> Of rain in my face, and a glad rebound
> From the heart beneath, as if, God speeding me,
> I entered his church-door, Nature leading me."

Of course it is understood that violent friction of the lower surface of a wind upon the upper surface of the sea, will raise the waves. The sea, in a gale, is a condition which all people understand. There are, however, certain winds, obeying their own laws, which produce storms at sea of a peculiar nature. These are typhoons and hurricanes.

The hurricane is a remarkable storm wind, peculiar to certain portions of the world. It rarely takes its rise beyond the tropics, and it is the only storm to dread within the region of the trade-winds. In the temperate zone, hurricanes do now and then occur, which, crossing the Atlantic from America, strike our own coasts. We had one in 1836, and we had one last year. But, on our side of the equator, the home of the hurricane is about the region of the West Indies: in the southern hemisphere, they favor Rodriguez and the Mauritius. Furthermore, they have their seasons. The West Indian occur from August to October. The Rodriguez, in the hot months of the other hemisphere. Furthermore, it is the nature of a hurricane to travel round and round, as well as forward, very much as a corkscrew travels through a cork, only the circles are all flat, and described by a rotatory wind upon the surface of the water. The rotatory wind blows the sea with it in a rotatory current; within the circle of the hurricane the air is calm, and its diminished pressure lifts the water up in a great storm wave, which, advancing with the hurricane, surrounded by its current, plays the deluge, if it strike upon a shore; but, otherwise, rolls on and on, while the wind dances round and round it; thus, twisting circles while it marches on its main path—that main path being itself a grander curve. Hurricanes always travel away from the equator. North of the equator, the great storm, revolving as it comes, rolls from the east towards the west; inclining from the equator, that is, northward. It always comes in that way; always describes in its main course the curve of an ellipse, which generally crosses the West India Islands, and presently, pursuing the ellipse, marches to the northeast from the coast of Florida, treading the waves of the Atlantic. In the southern hemisphere, hurricanes come from the northeast, and pursue a course away from the equator precisely

similar. No hurricane ever commenced its main course from the west; but, it is obvious that a ship, revolving in its circles, will find the wind in every quarter in turn; and that a hurricane's main course is from the west in the last portion of its travels. Take an egg, and place it on an atlas map so that its small end shall be near the coast of Florida, and its lower edge rest on the Leeward Islands: take a pencil, and, beginning eastward of those islands, trace the outline of your egg towards the west, turning its corner, and still tracing on towards the northeast, as if travelling to Europe; leave off now, and you have sketched the ordinary path of a West Indian hurricane.

Thunder and lightning frequently attend a hurricane, and, more especially in the southern hemisphere, dense sheets of rain. Clearly, it is most important that a ship's captain, overtaken by a hurricane, should know the nature and exact course of the storm. A horn-book is now published, by the use of which he readily obtains this knowledge, which enables him to put his ship so as she can ride safely until the hurricane is gone. Without such knowledge, puzzled by the changing wind, he perhaps drives before it, and is whirled round, circle after circle, dragged through the very road of danger; or, he escapes into the middle of a circle, has a little breathing time, and presently the crash returns; or, he gets out of the main course, and, through ignorance, encounters it again. Shipwrecks innumerable have been caused in this way. In the present day, though we have not yet established a full theory concerning hurricanes, the sailor has been taught to step out of their path; and that is something practical, for which a naval country owes its thanks (perhaps something more) to Colonel Reid and Mr. Piddington.

The typhoon, a relation of the hurricane's, is of Chinese

extraction. It is met with only in the China seas, not so far south as the Island of Mindanao, nor so far north as Corea, except upon the eastern borders of Japan. A typhoon walks abroad not oftener than about once every three or four years; and that is quite often enough. You may believe any thing of a typhoon. Robert Fortune says, that when he was at sea in a typhoon, a fish weighing thirty or forty pounds was blown out of the water, and fell through the skylight into the cabin. That might be believed of a typhoon from a less trustworthy informant.

Of local storms and currents caused, inland or out at sea, by inequalities of temperature, as, for example, by the warm current of the gulf-stream, we need not particularly speak. The storms and the rain-torrents of Cape Horn, where one hundred and fifty-three inches of rain have been measured in forty-one days, and where the whole year is a rainy season, we can only mention. To the simoom we give a nod of recognition; verily, that is a penetrating wind, which clogs with sand the works of a double-cased gold watch in the waistcoat pocket of a traveller. We wave our hands likewise to the Italian sirocco, and the Egyptian khamsin, and the dry harmattan; and so our dry talk ends.

It is raining still. Raining on the just and on the unjust; on the trees, the corn, and the flowers; on the green fields and the river; on the lighthouse bluff and out at sea. It is raining on the graves of some whom we have loved. When it rains upon a mellow summer evening, it is beneficently natural to most of us to think of that, and to give those verdant places their quiet share in the hope and freshness of the morrow.

THE END.

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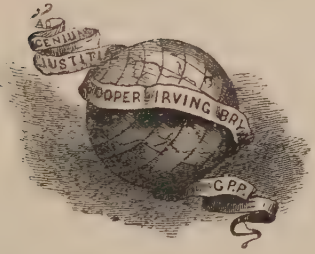

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THE WORLD HERE AND THERE.

Short Cuts across the Globe.

TO a person who wishes to sail to California an inspection of the map of the world reveals a provoking peculiarity. The Atlantic Ocean—the highway of the globe—being separated from the Pacific by the great western continent, it is impossible to sail to the opposite coasts without going thousands of miles out of his way; for he must double Cape Horn. Yet a closer inspection of the map will discover that but for one little barrier of land, which is in size but as a grain of sand to the bed of an ocean, the passage would be direct. Were it not for that small neck of land, the Isthmus of Panama, (which narrows in one place to twenty-eight miles) he might save a voyage of from six to eight thousand miles, and pass at once into the Pacific Ocean. Again, if his desires tend towards the East, he perceives that but for the Isthmus of Suez, he would not be obliged to double the Cape of Good Hope. The Eastern difficulty has been partially obviated by the overland route opened up by the ill-rewarded Waghorn. The western barrier has yet to be broken through

Now that we can shake hands with Brother Jonathan in twelve days by means of weekly steamers; travel from one end of Great Britain to another, or from the Hudson to the Ohio, as fast as the wind, and make our words dance to distant friends upon the magic tight wire a great deal faster—now that the European and Columbian Saxon is spreading his children more or less over all the known habitable world: it seems extraordinary that the simple expedient of opening a twenty-eight mile passage between the Pacific and Atlantic Oceans, to save a dangerous voyage of some eight thousand miles, has not been already achieved. In this age of enterprise that so simple a remedy for so great an evil should not have been applied appears astonishing. Nay, we ought to feel some shame when we reflect that evidences in the neighbourhood of both Isthmuses exist of such junctions having existed, in what we are pleased to designate 'barbarous' ages.

Does nature present insurmountable engineering difficulties to the Panama scheme? By no means: for after the Croton aqueduct, our own railway tunnelling and the Britannia tubular bridge, engineering difficulties have become obsolete. Are the levels of the Pacific and the Gulph of Mexico, which should be joined, so different, that if one were admitted the fall would inundate the surrounding country? Not at all. Hear Humboldt on these points.

Forty years ago he declared it to be his firm opinion that 'the Isthmus of Panama is suited to the formation of an oceanic canal —one with fewer sluices than the Caledonian Canal—capable of affording an unimpeded passage, at all seasons of the year, to vessels of that class which sail between New York and Liverpool, and between Chili and California.' In the recent edition of his 'Views of Nature,' he 'sees no reason to alter the views he has

always entertained on this subject.' Engineers, both British and American, have confirmed this opinion by actual survey. As, then, combination of British skill, capital, and energy, with that of the most 'go-ahead' people upon earth, have been dormant, whence the secret of the delay? The answer at once allays astonishment:—Till the present time, the speculation would not have 'paid.'

Large works of this nature, while they create an inconceivable development of commerce, must have a certain amount of a trading population to begin upon. A gold-beater can cover the effigy of a man on horseback with a sovereign; but he must have the sovereign first. It was not merely because the full power of the iron rail to facilitate the transition of heavy burdens had not been estimated, and because no Stephenson had constructed a 'Rocket engine,' that a railway with steam locomotives was not made from London to Liverpool before 1836. Until the intermediate traffic between these termini had swelled to a sufficient amount in quantity and value to bear reimbursement for establishing such a mode of conveyance, its execution would have been impossible, even though men had known how to set about it.

What has been the condition of the countries under consideration? In 1839, the entire population of the tropical American isthmus, in the states of Central America and New Grenada, did not exceed three millions. The number of the inhabitants of pure European descent did not exceed one hundred thousand. It was only among this inconsiderable fraction that anything like wealth, intelligence, and enterprise, akin to that of Europe, was to be found; the rest were poor and ignorant aboriginals and mixed races, in a state of scarcely demi-civilisation. Throughout this thinly-peopled and poverty-stricken region, there was neither

law nor government. In Stephens's 'Central America,' may be found an amusing account of a hunt after a government, by a luckless American diplomatist, who had been sent to seek for one in Central America. A night wanderer running through bog and brake after a will-o'-the-wisp could not have encountered more perils, or been in search of a more impalpable phantom. In short, there was nobody to trade with. To the south of the Isthmus, along the Pacific coast of America, there was only one station to which merchants could resort with any fair prospect of gain—Valparaiso. Except Chili, all the Pacific states of South America were retrogading from a very imperfect state of civilisation, under a succession of petty and aimless revolutions. To the north of the Isthmus matters were little, if anything, better. Mexico had gone backwards from the time of its revolution; and, at the best, its commerce in the Pacific had been confined to a yearly ship between Acapulco and the Philippines. Throughout California and Oregon, with the exception of a few European and half-breed members, there were none but savage aboriginal tribes. The Russian settlements in the far north had nothing but a paltry trade in furs with Kamschatka, that barely defrayed its own expenses. Neither was there any encouragement to make a short cut to the innumerable islands of the Pacific. The whole of Polynesia lay outside of the pale of civilisation. In Tahiti, the Sandwich group, and the northern peninsula of New Zealand, missionaries had barely sowed the first seeds of morals and enlightenment. The limited commerce of China and the Eastern Archipelago was engrossed by Europe, and took the route of the Cape of Good Hope, with the exception of a few annual vessels that traded from the sea-board States of the North American Union to Valparaiso and Canton. The wool of New South

Wales was but coming into notice, and found its way to England alone round the Cape of Good Hope. An American fleet of whalers scoured the Pacific, and adventurers of the same nation carried on a desultory and inconsiderable traffic in hides with California, in tortoise-shell and mother-of-pearl with the Polynesian Islands.

What then would have been the use of cutting a canal, through which there would not have passed five ships in a twelvemonth? But twenty years have worked a wondrous revolution in the state and prospects of these regions.

The traffic of Chili has received a large development, and the stability of its institutions has been fairly tried. The resources of Costa Rica, the population of which is mainly of European race, is steadily advancing. American citizens have founded a state in Oregon. The Sandwich Islands have become for all practical purposes an American colony. The trade with China—to which the proposed canal would open a convenient avenue by a western instead of the present eastern route—is no longer restricted to the Canton river, but is open to all nations as far north as the Yangtse-Kiang. The navigation of the Amur has been opened to the Russians by a treaty, and cannot long remain closed against the English and American settlers between Mexico and the Russian settlements in America. Tahiti has become a kind of commercial emporium. The English settlements in Australia and New Zealand have opened a direct trade with the Indian Archipelago and China. The permanent settlements of intelligent and enterprising Anglo-Americans and English in Polynesia, and on the eastern and western shores of the Pacific, have proved so many *depôts* for the adventurous traders with its innumerable islands, and for the spermaceti whalers. Then the last, but

greatest addition of all, is California: a name in the world of commerce and enterprise to conjure with. There gold is to be had for fetching. Gold, the main-spring of commercial activity, the reward of toil—for which men are ready to risk life, to endure every sort of privation; sometimes, alas! to sacrifice every virtue; one most especially, and that is Patience. They will away with her now.

Till the discovery of the new Gold country how contentedly they dawdled round Cape Horn; creeping down one coast and up another; but now such delay is not to be thought of. Already, indeed, Panama has become the seat of a great, increasing, and perennial transit trade. This cannot fail to augment the settled population of the region, its wealth and intelligence. Upon these facts we rest the conviction that the time has arrived for realising the project of a ship canal there or in the near neighbourhood.

That a ship canal, and not a railway, is what is first wanted (for very soon there will be both), must be obvious to all acquainted with the practical details of commerce. The delay and expense to which merchants are subjected, when obliged 'to break bulk' repeatedly between the port whence they sail and that of their destination, is extreme. The waste and spoiling of goods, the cost of the operation, are also heavy drawbacks, and to these they are subject by the stormy passage round Cape Horn.

Two points present themselves offering great facilities for the execution of a ship canal. The one is in the immediate vicinity of Panama; where the many imperfect observations which have hitherto been made, are yet sufficient to leave no doubt that, as the distance is comparatively short, the summit levels are inconsiderable, and the supply of water ample. The other is some

distance to the northward. The isthmus is there broader, but is in part occupied by the large and deep fresh-water lakes of Nicaragua and Naragua. The lake of Nicaragua communicates with the Atlantic by a copious river, which may either be rendered navigable, or be made the source of supply for a side canal. The space between the two lakes is of inconsiderable extent, and presents no great engineering difficulties. The elevation of the lake of Naragua above the Pacific is inconsiderable; there is no hill range between it and the Gulph of Canchagua; and Captain Sir Edward Belcher carried his surveying ship *Sulphur* sixty miles up the Estero Real, which rises near the lake, and falls into the gulph. The line of the Panama canal presents, as Humboldt remarks, facilities equal to those of the line of the Caledonian canal. The Nicaragua line is not more difficult than that of the canal of Languedoc, a work executed between 1660 and 1682, at a time when the commerce to be expedited by it did not exceed—if it equalled—that which will find its way across the Isthmus; when great part of the maritime country was as thinly inhabited by as poor a population as the Isthmus now is; and when the last subsiding storms of civil war, and the dragonnades of Louis XIV. unsettled men's minds and made person and property insecure.

The cosmopolitan effects of such an undertaking, if prosecuted to a successful close, it is impossible even approximately to estimate. The acceleration it will communicate to the already rapid progress of civilisation in the Pacific is obvious. And no less obvious are the beneficial effects it will have upon the mutual relations of civilised states, seeing that the recognition of the independence and neutrality in times of general war of the canal and the region through which it passes, is indispensable to its establishment.

We have dwelt principally on the commercial, the economical considerations of the enterprise, for they are what must render it possible. But the friends of Christian missions, and the advocates of Universal Peace among nations, have yet a deeper interest in it. In the words used by Prince Albert at the dinner at the Mansion House respecting the forthcoming great Exhibition of Arts and Industry, 'Nobody who has paid any attention to the particular features of our present era will doubt for a moment that we are living at a period of most wonderful transition, which tends rapidly to accomplish that great end—to which indeed all history points—the realisation of the unity of mankind. Not a unity which breaks down the limits and levels the peculiar characteristics of the different nations of the earth, but rather a unity, the result and product of those very national varieties and antagonistic qualities. The distances which separated the different nations and parts of the globe are gradually vanishing before the achievements of modern invention, and we can traverse them with incredible speed; the languages of all nations are known, and their acquirements placed within the reach of everybody; thought is communicated with the rapidity, and even by the power of lightning.'

Every short cut across the globe brings man in closer communion with his distant brotherhood, and results in concord, prosperity, and peace.

THE ISTHMUS OF SUEZ.

That little neck of land which lies between the head of the Red Sea and the Gulph of Gaza, in the Mediterranean, is the cause of merchandise circumnavigating the two longest sides of

the triangular continent of Africa on its way to the East; instead of making the short cut which is available for passengers by what is called the 'overland route.' If a water-way were opened across the Isthmus, the highway for the goods traffic as well for the passenger traffic of Europe, India, China, and Australia, will be along the Mediterranean and Red Seas and the Indian Ocean. And that highway will be so thronged, that the expense of travelling by it will be reduced to a *minimum*, and the accommodations for travellers at intermediate stations raised to a *maximum* of comfort.

This state of affairs—analogous to that which occurs in the intercourse of two towns where there is a round-about road for carts and carriages, and a footpath across the meadows for foot-passengers only—is attended by great inconveniences. Letters relating to mercantile transactions are forwarded by the short cut; the merchandise to which they relate follows tardily by the round-about road. The advantageous bargain concluded now may have a very different aspect when the goods come to be delivered three or four months hence. The seven-league-boot expedition of letters, and the tardy progress of goods, convert all transactions between England and India into a game of chance. This fosters that spirit of gambling speculation already too rife among us.

Again, so long as the route for passengers continues to be something different and apart from the route for merchandise, the travelling charges will be kept higher, and the accommodations for travellers less comfortable than they would otherwise be. Railways, in arranging their tariff of fares, venture to reduce the charge for passengers (in the hope of augmenting their number) when they can rely upon the returns from the goods traffic to make up deficiencies. If merchandise, as well as travellers and

letters, could be carried by what is called the overland route (of which scarcely two hundred miles are travelled by land,) the passengers' fares would admit of great reduction; and as that route would thus become the great highway, frequented by greater crowds, the accommodation of travellers could be better cared for. Travellers in carriages rarely reflect how much the amount of charges at inns depends upon the landlords having a profitable run of business among less distinguished guests.

As we remarked, when descanting on the Panama route, physical obstacles to the opening of short cuts are of much less consequence than those which originate in financial difficulties. Almost any physical obstacles may be overcome, if money can be profitably invested in the undertaking, and if money can be got for such investment.

Were we projectors of companies, and engaged in preparing an attractive prospectus, we might boldly declare that the obstacles in the construction of a ship canal at Suez are trifling, and that the work would prove amply remunerative. But being only impartial spectators, we are obliged to confess that our information respecting the nature of the country is lamentably defective, and that what we do know does not warrant any sanguine expectation. Public attention has been industriously directed from the true line of a ship canal across the Isthmus of Suez. The late Mehemet Ali—peace to his ashes!—was a humbug of the first water, and he knew how to avail himself of the services of kindred spirits. He understood enough of European whims and sentiments to know what tone of language he must adopt in order to persuade Europeans he was subserving their views, while he was, in reality, promoting his own. He talked, therefore, of facilitating the intercourse between India and Europe, but he thought of making that

intercourse pass through his dominions by the longest route, and in the way which would oblige travellers to leave the greatest possible amount of money behind them; and to attain his ends he retained in his service a motley group of Europeans—the vain, the ignorant, and the jobbing, who did his spiriting after a fashion that bears conclusive testimony to his judgment and tact in selecting them.

What is really wanted for the commerce of Europe and India, is a ship canal across the Isthmus of Suez, by the shortest and least difficult route. What Mehemet Ali conceded was a land passage through his dominions by the longest possible route. The natural course of a ship canal is, in a straight line, from Suez to the eastern extremity of Lake Menzaleh: the line of transit conceded by Mehemet Ali is from Alexandria by Cairo to Suez, nearly three times as long. The former line passes across a low and well-watered region: the latter renders necessary an interchange of canal and river navigation, and dry land passage across the desert. The former might be passed in a day without halting: the latter occupies several days, and includes necessary stoppages in the inns of Alexandria and Cairo. But Mehemet Ali and his tools directed attention from the former, and gabbled about railways and other impracticabilities, and the European public was gulled. Egypt can be reached any day by a fortnight's easy and luxurious travel, and yet the country between the eastern extremity of Lake Menzaleh and Suez is less accurately known than the Isthmus of Panama.

What we do know, with any degree of certainty about this transit, is briefly as follows:—The navigation of the Red Sea in the vicinity of Suez is rather intricate, abounding in shoals, but there is secure anchorage, and sufficient draft of water for merchant ships of considerable burden. The Mediterranean off the

eastern extremity of Lake Menzaleh is rather shallow, tolerably sheltered from the west wind, which prevails for a part of the year, but exposed to the north wind. Between Suez and the site of the ruins of Pelusium at the eastern end of the lake, the land is low and level, apparently for a part of the way between the level of both seas. The low land receives in the wet season the drainings of the high land on the east, which is a northern continuation of the mountains between the gulfs of Suez and Akaba. In addition to this, the land to the westward (northward of the Mokattam mountains which terminate near Cairo) has a twofold slope,—the principal northward to the Mediterranean, the secondary eastward to the line of country we are now describing. Originally, there appears to have been a branch of the Nile entering the Mediterranean near where the ruins of Pelusium now are, and those intermediate branches between that and the Damietta branch.

The first mentioned is now closed, the other two very much obstructed; but their waters still find a way to the coast, though diminished by artificial works, and appear to be the cause of the collection of shallow water called Lake Menzaleh. Here, then, we have sixty geographical miles of a low country, with no considerable undulations, towards which the waters of Arabia Petræa flow in their season, and towards which a considerable portion of the waters of the Nile would flow if left to fall on the natural declivity of the country. There is an abundant supply of water for a ship canal. The surface of the ground is in some places covered with drift sand, but not uniformly nor even for the most part. The subsoil is hard, clayey or pebbley. The bent-grasses might be cultivated, as they have been in Holland, to give firmness to the drift sand where it occurs; and this superficial obstacle removed, the subsoil is favourable to the construction of a perma-

nent water-channel. The great difficulty would be the construction of works by which access to the canal is to be obtained from the Mediterranean. Apparently they would require to be carried far out into the sea; and apparently it would be difficult to prevent their being sanded up by the waves which the north winds drive upon the coast for a great part of the year.

These difficulties, though great, are not insuperable. The advanced state of marine architecture and engineering ought surely to be able to cope with them. By re-opening the Pelusiac branch of the Nile, and throwing into it the waters which would naturally find their way into the Tanitic and Mendesian branches, a sufficient stream of water might be thrown into the Mediterranean at Pelusium to keep a passage open by its *scour*. We must speak with diffidence about a locality which has yet been so imperfectly surveyed; but so far as the present state of our knowledge respecting it enables us to judge, there are no serious impediments to the construction of a ship canal from Pelusium to Suez, which would be perfectly accessible and practicable for vessels of from 300 to 350 tons burden; and there is a growing impression among merchants and skippers that this class of vessels is the best for trading purposes.

But the great difficulty remains yet to be noticed; the condition of government and civil security in that country. The Isthmus is close on the borders of civilised Europe, and ample supplies of effective labourers could be procured from Malta, and the Syrian and African coasts. But so long as the country is subject to a Turkish dynasty, could the undertakers count upon fair play and sufficient protection from the local authorities? And are the jealous powers of Europe likely to combine in good faith to afford them a guarantee that they should be enabled to prosecute their enterprise in security?

The Golden City.

"THE fitful flame of Young Romance," fed by the Arabian Nights' Entertainments, Fairy Tales and Heathen Mythologies; the wonderful fables of Genii and Magicians; stories of towns springing up, ready-built, out of deserts; tales of cities paved with gold; the Happy Valley of Rasselas; the territories of Oberon and Titania, Robert Owen's New Harmony, and the land of Cockaigne; Gulliver's Travels, the Adventures of Peter Wilkins, legends of beggars made kings, and mendicants millionaires; Sinbad the Sailor, Baron Munchausen, Law of Lauriston, Major Longbow, Colonel Crockett, the Poyais loan; illimitable exaggeration; undaunted lying; the most rampant schemes of the most rabid speculators; the wildest visions of the maddest poet; the airiest castle of the most Utopian lunatic—any one of these, and all of them put together, do not exceed the wondrous web of realities that is being daily woven around both hemispheres of the globe. Not to mention conversations carried on thousands of miles apart, by means of electricity, and a hundred other marvels that Science has converted into common places, we would now confine ourselves to the latest "wonderful wonder that has ever been wondered at"—the gold region of California; but more especially to its capital, San Francisco.

The story of the magic growth of this city would have defied belief, had it not rapidly grown up literally under the "eyes of Europe." When the returns were made to the United States' authorities in 1831, it contained three hundred and seventy-one

individuals, and very few more resided in it up to the discovery of gold at Sutter's Mill, in the Sacramento River. Even in April, 1849, we learn from a credible eye-witness, that there were only from thirty to forty houses in San Francisco; and that the population was so small, that so many as twenty-five persons could never be seen out of doors at one time. There now lie before us two prints; one of San Francisco, taken in November, 1848, soon after the discovery was made, and another exactly a year afterwards. In the first we are able to count twenty-six huts and other dwellings dotted about at uneven distances, and four small ships in the harbour. In the second, the habitations are countless. The hollow, upon which the city partly stands, presents a bird's-eye view of roofs, packed so closely together, that the houses they cover are innumerable; while the sides of the surrounding hills are thickly strewed with tents and temporary dwellings. On every side are buildings of all kinds, begun or half-finished, but the greater part of them mere canvas sheds, open in front, and displaying all sorts of signs, in all languages. Great quantities of goods are piled up in the open air, for want of a place to store them. The streets are full of people, hurrying to and fro, and of as diverse and bizarre a character as the houses: Yankees of every possible variety, native Californians in *sarapes* and sombreros, Chilians, Sonorians, Kanakas from Hawaii, Chinese with long tails, Malays and others in whose embrowned and bearded visages it is impossible to recognise any especial nationality. In the midst is the plaza, now dignified by the name of Portsmouth Square. It lies on the slope of the hill; and, from a high pole in front of a long one-story adobe building used as the Custom House, the American flag is flying. On the lower side is the Parker House

Hotel. The bay of San Francisco is black with the hulls of ships, and a thick forest of masts intercepts the landscapes of the opposite coast and the islet of Yerba Buena. Flags of all nations flutter in the breeze, and the smoke of three steamers is borne away on its wings in dense wreaths.—The first picture is one of stagnation and poverty, the other presents activity and wealth in glowing colors.

"Verily," says the correspondent of a Boston Paper, "the place was in itself a marvel. To say that it was daily enlarged by from twenty to thirty houses may not sound very remarkable after all the stories that have been told; yet this, for a country which imported both lumber and houses, and where labor was then ten dollars a day, is an extraordinary growth. The rapidity with which a ready-made house is put up and inhabited, strikes the stranger in San Francisco as little short of magic. He walks over an open lot in his before-breakfast stroll—the next morning, a house complete, with a family inside, blocks up his way. He goes down to the bay and looks out on the shipping—two or three days afterwards a row of store houses, staring him in the face, intercepts the view."

An intelligent traveller from the United States has recorded his impressions of this marvellous spot, as he saw it in August, 1849:—

"The restless, feverish tide of life in that little spot, and the thought that what I then saw and was yet to see, will hereafter fill one of the most marvellous pages of all history, rendered it singularly impressive. The feeling was not decreased on talking that evening with some of the old residents, (that is of six months' standing,) and hearing their several experiences. Every new-comer in San Francisco is overtaken with a sense of complete

bewilderment. The mind, however it may be prepared for an astonishing condition of affairs, cannot immediately push aside its old instincts of value and ideas of business, letting all past experiences go for nought and casting all its faculties for action, intercourse with its fellows, or advancement in any path of ambition, into shapes which it never before imagined. As in the turn of the dissolving views, there is a period when it wears neither the old nor the new phase, but the vanishing images of the one and the growing perceptions of the other are blended in painful and misty confusion. One knows not whether he is awake or in some wonderful dream. Never have I had so much difficulty in establishing, satisfactorily to my own senses, the reality of what I saw and heard." *

The same gentleman, after an absence in the interior of four months, gives a notion of the rapidity with which the city grew, in the following terms:

"Of all the marvellous phases of the history of the Present, the growth of San Francisco is the one which will most tax the belief of the Future. Its parallel was never known, and shall never be beheld again. I speak only of what I saw with my own eyes. When I landed there, a little more than four months before, I found a scattering town of tents and canvas houses, with a show of frame buildings on one or two streets, and a population of about six thousand. Now, on my last visit, I saw around me an actual metropolis, displaying street after street of well-built edifices, filled with an active and enterprising people and exhibiting every mark of permanent commercial prosperity. Then,

* "Eldorado," by Bayard Taylor, correspondent of the "Tribune" newspaper.

the town was limited to the curve of the Bay fronting the anchorage and bottoms of the hills. Now, it stretched to the topmost heights, followed the shore around point after point, and sending back a long arm through a gap in the hills, took hold of the Golden Gate, and was building its warehouses on the open strait and almost fronting the blue horizon of the Pacific. Then the gold-seeking sojourner lodged in muslin rooms and canvas garrets, with a philosophic lack of furniture, and ate his simple though substantial fare from pine boards. Now, lofty hotels, gaudy with verandas and balconies, were met with in all quarters, furnished with home luxury, and aristocratic restaurants presented daily their long bills of fare, rich with the choicest technicalities of the Parisian cuisine. Then, vessels were coming in day after day, to lie deserted and useless at their anchorage. Now scarce a day passed, but some cluster of sails, bound *outward* through the Golden Gate, took their way to all the corners of the Pacific. Like the magic seed of the Indian juggler, which grew, blossomed, and bore fruit before the eyes of his spectators, San Francisco seemed to have accomplished in a day the growth of half a century."

In San Francisco everything is reversed. The operations of trade are exactly opposite to those of older communities. There the rule is scarcity of money and abundance of labour, produce, and manufactures; here cash overflows out of every pocket, and the necessaries of existence will not pour in fast enough. Mr. Taylor tells us, that a "curious result of the extraordinary abundance of gold and the facility with which fortunes were acquired, struck me at the first glance. All business was transacted on so extensive a scale, that the ordinary habits of solicitation and compliance on the one hand, and stubborn cheapening on the other,

seemed to be entirely forgotten. You enter a shop to buy something; the owner eyes you with perfect indifference, waiting for you to state your want: if you object to the price you are at liberty to leave, for you need not expect to get it cheaper; he evidently cares little whether you buy it or not. One who has been some time in the country will lay down the money without wasting words. The only exception I found to this rule was that of a sharp-faced Down-Easter just opening his stock, who was much distressed when his clerk charged me seventy-five cents for a coil of rope, instead of one dollar. This disregard for all the petty arts of money-making was really a refreshing feature of society. Another equally agreeable trait was the punctuality with which debts were paid, and the general confidence which men were obliged to place, perforce, in each other's honesty. Perhaps this latter fact was owing, in part, to the impossibility of protecting wealth, and consequent dependence on an honourable regard for the rights of others."

While this gentleman was in San Francisco, an instance of the fairy-like manner in which fortunes are accumulated, came under his observation. A citizen of San Francisco died insolvent to the amount of forty-one thousand dollars the previous autumn. His administrators were delayed in settling his affairs, and his real estate advanced so rapidly in value meantime, that after his debts were paid, his heirs derived a yearly income from it of forty thousand dollars!

The fable of a city paved with gold is realised in San Francisco. Mr. Taylor reports:—"Walking through the town, I was quite amazed to find a dozen persons busily employed in the streets before the United States Hotel, digging up the earth with knives and crumbling it in their hands. They were actual gold-

hunters, who obtained in this way about five dollars a day. After blowing the fine dirt carefully in their hands, a few specks of gold were left, which they placed in a piece of white paper. A number of children were engaged in the same business, picking out the fine grains by applying to them the head of a pin, moistened in their mouths. I was told of a small boy having taken home fourteen dollars as the result of one day's labor. On climbing the hill to the Post Office I observed in places where the wind had swept away the sand, several glittering dots of the real metal, but, like the Irishman who kicked the dollar out of his way, concluded to wait till I should reach the heap. The presence of gold in the streets was probably occasioned by the leakings from the miners' bags and the sweepings of stores; though it may also be, to a slight extent, native in the earth, particles having been found in the clay thrown up from a deep well."

The prices paid for labour were at that time equally *romantic*. The carman of one firm (Messrs. Mellus, Howard, and Co.) drew a salary of twelve hundred a year; and it was no uncommon thing for such persons to be paid from fifteen to twenty dollars, or between three and four pounds sterling per day. Servants were paid from forty to eighty pounds per month. Since this time (August, 1849), however, wages had fallen; the labourers for the rougher kinds of work could—poor fellows—get no more than something above the pay of a Lieutenant-Colonel in the British army, or about four hundred per annum. The scarcity of labour is best illustrated by the cost of washing, which was one pound twelve shillings per dozen. It was therefore found cheaper to put out washing to the antipodes; and to this day, San Francisco shirts are washed and "got up" in China and the

Sandwich Islands. So many hundred dozens of dirty, and so many hundred dozens of washed linen form the part of every outward and inward cargo to and from the Golden City.

The profits upon merchandise about the time we are writing of, may be judged of by one little transaction recorded by Mr. Taylor:—"Many passengers," he writes, "began speculation at the moment of landing. The most ingenious and successful operation was made by a gentleman of New York, who took out fifteen hundred copies of 'The Tribune' and other papers, which he disposed of in two hours, at one dollar a-piece! Hearing of this I bethought me of about a dozen papers which I had used to fill up crevices in packing my valise. There was a newspaper merchant at the corner of the City Hotel, and to him I proposed the sale of them, asking him to name a price. I shall want to make a good profit on the retail price,' said he, 'and can't give more than ten dollars for the lot.' I was satisfied with the wholesale price, which was a gain of just four thousand per cent."

The prices of food are enormous, and, unhappily, so are the appetites; "for two months after my arrival," says a respectable authority, "my sensations were like those of a famished wolf;" yet the first glance at the tariff of a San Francisco bill of fare is calculated to turn the keenest European stomach. "Where shall we dine to-day?" asked Mr. Taylor, during his visit. "The restaurants display their signs invitingly on all sides; we have choice of the United States, Tortoni's, the Alhambra, and many other equally classic resorts, but Delmonico's, like its distinguished original in New York, has the highest prices and the greatest variety of dishes. We go down Kearney Street to a two-story wooden house on the corner of Jackson. The lower story is a market; the walls are garnished with quarters of beef and mut-

ton; a huge pile of Sandwich Island squashes fills one corner, and several cabbage-heads, valued at two dollars each, show themselves in the window. We enter a little door at the end of the building, ascend a dark, narrow flight of steps and find ourselves in a long, low room, with ceiling and walls of white muslin and a floor covered with oil-cloth. There are about twenty tables disposed in two rows, all of them so well filled that we have some difficulty in finding places. Taking up the written bill of fare, we find such items as the following:—

	Dol.	Cents.
SOUPS.		
Mock Turtle	0	75
St. Julien	1	00
FISH.		
Boiled Salmon, Trout, Anchovy Sauce	1	75
BOILED.		
Leg of Mutton, Caper Sauce	1	00
Corned Beef, Cabbage	1	00
Ham and Tongues	0	75
ENTREES.		
Fillet of Beef, Mushroom Sauce	1	75
Veal Cutlets, breaded	1	00
Mutton Chop	1	00
Lobster Salad	2	00
Sirloin of Venison	1	50
Baked Maccaroni	0	75
Beef Tongue, Sauce piquante	1	00

So that, with but a moderate appetite, the dinner will cost us five dollars, if we are at all epicurean in our tastes. There are cries of 'steward!' from all parts of the room—the word 'waiter' is not considered sufficiently respectful, seeing that the waiter may have been a lawyer or a merchant's clerk a few months before. The dishes look very small as they are placed on the table,

but they are skilfully cooked and are very palatable to men that have ridden in from the diggings."

Lodging was equally extravagant. A bedroom in an hotel, 50*l.* per month, and a sleeping berth or "bunk"—one of fifty in the same apartment—1*l.* 4*s.* per week. Social intercourse is almost unknown. There are no females, and men have no better resource than gambling, which is carried on to an extent, and with a desperate energy, hardly conceivable. "Gambling," says a private correspondent, whose letter, dated April 20, 1850, now lies before us, "is carried on here with a bold and open front, so as to alarm and astonish one. Thousands and thousands change hands nightly. Go in, for instance, to a place called 'Parker House,' which is a splendid mansion, fitted up as well as any hotel in England; step into the front room, and you see five or six Monte, Roulette, and other gaming-tables, each having a bank of nearly half a bushel of gold and silver, piled up in the centre. That the excitement shall not be wholly devoid of diversion, the Muses lend their aid, and a band plays constantly to crowded rooms! Step into the next building, called 'El Dorado,' and there a similar scene is presented, and which is repeated, on a smaller scale, all over the town. The gamblers seem to control the town, but of course their days must be numbered. Fortunes are made or lost daily. People gamble with a freedom and recklessness which you can never dream of. Young men who come here must at all times resist gaming, or it must eventually end in their ruin: the same with drinking, as there is much of it here."

The variety of habits, manners, tastes, and prejudices, occasioned by the confluence in one spot of almost every variety of the human species, is another bar to a speedy deposit of all

these floating and opposite elements into a compact and well assimilated community. "Here," writes the same gentleman, "we see the character and habits of the English, Irish, Scotch, German, Pole, French, Spaniard, and almost every other nation of Europe. Then you have the South American, the Australian, the Chilian; and finally, the force of this golden mania has dissolved the chain that has hitherto bound China in national solitude, and she has now come forth, like an anchorite from his cell, to join this varied mass of golden speculators. Here we see in miniature just what is done in the large cities of other countries; we have some of our luxuries from the United States and the tropics, butter from Oregon, and for the most part California, Upper or Lower, furnishes us with our beef, &c. The streets are all bustle, as you may imagine, in a place now of nearly thirty thousand inhabitants, independent of a small world of floating population."

Not the smallest wonder, however, presented in this region, is the rapid manner in which social order was shaped out of the human chaos. When a new placer or "gulch" was discovered, the first thing done was to elect officers and extend the area of order. The result was, that in a district five hundred miles long, and inhabited by one hundred thousand people—who had neither government, regular laws, rules, military or civil protection, nor even locks or bolts, and a great part of whom possessed wealth enough to tempt the vicious and depraved,—there was as much security to life and property as in any part of the Union, and as small a proportion of crime. The capacity of a people for self-government was never so triumphantly illustrated Never, perhaps, was there a community formed of more unpropitious elements; yet from all this seeming

chaos grew a harmony beyond what the most sanguine apostles of Progress could have expected. Indeed, there is nothing more remarkable connected with the capital of El Dorado, than the centre point it has become.

The story of Cadmus, who sowed dragons' teeth, and harvested armed men, who became the builders of cities; the confusion of tongues at the Tower of Babel; and the beautiful allegory of the lion lying down with the lamb; are all types of San Francisco. The first, of its sudden rise; the second, of the varieties of the genus Man it has congregated; and the third, of the extremes of those varieties, which range from the Polynesian savage to the most civilised individuals that Europe can produce. It is a coincidence well worthy of note, that, besides the intense attractions possessed from its gold, Upper or New California is of all other places the best adapted, from its geographical position, to become a rendezvous for all nations of the earth, and that the Bay of San Francisco is one of the best and most convenient for shipping throughout the western margin of the American continent. It is precisely the locality required to make a constant communication across the Pacific Ocean with the coasts of China, Japan, and the Eastern Archipelago commercially practicable. Its situation is that which would have been selected from choice for a concentration of delegates from the uttermost ends of the earth. If the Chinese, the Malay, the Ladrone, or the Sandwich Islander had wished to meet his Saxon or Celtic brother on a matter of mutual business, he would—deciding geographically—have selected California as the spot of assembly. The attractive powers of gold could not, therefore, have struck forth over the world from a better point than in and around San Francisco, both for the interests of commerce and for those of human intercourse.

The practical question respecting the Golden City remains yet to be touched. Does it offer wholesome inducements for emigration? On this subject we can do no more than quote the opinions of the intelligent and enterprising gentleman, to whose private letter we have already referred:—"This, I should say, is the best country in the world for an active, enterprising, steady young man, provided he can keep his health, as the climate, without due precaution, is not a healthy one. In the summer season, the weather is pleasantly warm from morning till noon, then it is windy till evening, and dusty, and then becomes so cold as to require an over-coat. This weather lasts to October, when the wind gets round to the south-west. It is dry, warm, and pleasant now (April). This and the rainy season are the pleasantest and warmest here. Thousands, on arriving, fall victims to the prevailing disease of dysentery. On the latter account, therefore, I should not advise, or be the indirect means of inducing, any one to make the adventure here, because it is impossible to foresee or calculate whether or not he can stand the climate and inconveniences of this country; and, if so, he is sure to be exposed to a miserable and too often neglected sickness, and ending in a miserable death. I have not been ill myself so far, as my general health has been extremely good, and I never looked so well as now. The climate seems to operate injuriously on bilious habits; but to those who can stand it, it is decidedly pleasanter than England. Fires are never necessary. Out of doors, at night, a great-coat is required, but in the house it is always warm. The whole and only question, with a man making up his mind to locate in California, should be in regard to his health. Business of all descriptions is better here than in any other part of the world, and he who perseveres is sure to succeed.

"There are various opinions afloat, in regard to the fertility of the soil, some holding that there are productive valleys in the interior which would supply sufficient sustenance for home consumption: others assert the reverse. Certain it is, however, that in many parts in the interior, the climate is delightful, but owing to the long continued dry season, I have doubts as to her ever raising a sufficient supply of vegetable necessaries of life: our market now is supplied from the Sandwich Islands and Oregon.

"As to gold mining, it is altogether a lottery; one man may make a large amount daily, another will but just live. There is an inexhaustible quantity of gold, however, but with many it is inconceivably hard to get, as the operations are so many, and health so very precarious, that it is a mere chance matter if you succeed in getting a large sum speedily. It seems a question whether it would not be advisable for the American Government to work the mines ultimately.

"California must 'go a-head:' the east will pour through the country her immense commerce into the States, and the mines will last for ages. Finally, I would now say to my friends, that, if you are inclined to come to this country, upon this my report of it, you must, to succeed, attend to my warnings as to drinking and gambling, and to my precautions against climate."

Our Phantom Ship among the Ice.

YONDER is the coast of Norway; we shall soon be at Spitzbergen. The "Phantom" is fitted out for Arctic exploration, with instructions to find her way, by the north-west, to Behring Straits, and take the South Pole on her passage home. Just now, we steer due north, and yonder is the coast of Norway. From that coast parted Hugh Willoughby, three hundred years ago; the first of our countrymen who wrought an ice-bound highway to Cathay. Two years afterwards his ships were found, in the haven of Arzina, in Lapland, by some Russian fishermen; near and about them Willoughby and his companions—seventy dead men. The ships were freighted with their frozen crews, and sailed for England; but, "being unstaunch, as it is supposed, by their two years' wintering in Lapland, sunk, by the way, with their dead, and them also that brought them."

Ice floats about us now, and here is a whale blowing; a whale, too, very near Spitzbergen. When first Spitzbergen was discovered, in the good old times, there were whales here in abundance; then a hundred Dutch ships, in a crowd, might go to work, and boats might jostle with each other, and the only thing deficient would be stowage room for all the produce of the fishery. Now one ship may have the whole field to itself, and travel home with an imperfect cargo. It was fine fun in the good old times; there was no need to cruize. Coppers and boilers were fitted on the island, and little colonies about them, in the fishing season, had nothing to do but tow the whales in, with a boat, as fast as

they were wanted by the copper. No wonder that so enviable a Tom Tidler's ground was claimed by all who had a love for gold and silver. The English called it theirs, for they first fished; the Dutch said, nay, but the Island was of their discovery; Danes, Hamburghers, Biscayans, Spaniards, and French put in their claims; and at length, it was agreed to make partitions. The numerous bays and harbours which indent the coast were divided among the rival nations; and, to this day, many of them bear, accordingly, such names as English Bay, Danes Bay, and so forth. One bay there is, with graves in it, named Sorrow. For it seemed to the fishers most desirable, if possible, to plant upon this island permanent establishments, and condemned convicts were offered, by the Russians, life and pardon, if they would winter in Spitzbergen. They agreed; but, when they saw the icy mountains and the stormy sea, repented, and went back, to meet a death exempt from torture. The Dutch tempted free men, by high rewards, to try the dangerous experiment. One of their victims left a journal, which describes his suffering and that of his companions. Their mouths, he says, became so sore that, if they had food, they could not eat; their limbs were swollen and disabled with excruciating pain; they died of scurvy. Those who died first were coffined by their dying friends; a row of coffins was found in the spring, each with a man in it; two men uncoffined, side by side, were dead upon the floor. The journal told how once the traces of a bear excited their hopes of fresh meat and amended health; how, with a lantern, two or three had limped upon the track, until the light became extinguished, and they came back in despair to die. We might speak, also, of eight English sailors, left, by accident, upon Spitzbergen, who lived to return and tell their winter's-tale; but a

long journey is before us, and we must not linger on the way. As for our whalers it need scarcely be related that the multitude of whales diminished as the slaughtering went on, until it was no longer possible to keep the coppers full. The whales had to be searched for by the vessels, and thereafter it was not worth while to take the blubber to Spitzbergen to be boiled; and the different nations, having carried home their coppers, left the apparatus of those fishing stations to decay.

Take heed. There is a noise like thunder, and a mountain snaps in two. The upper half comes, crushing, grinding, down into the sea, and loosened streams of water follow it. The sea is displaced before the mighty heap; it boils and scatters up a cloud of spray; it rushes back, and violently beats upon the shore. The mountain rises from its bath, sways to and fro, while water pours along its mighty sides; now it is tolerably quiet, letting crackers off as air escapes out of its cavities. That is an iceberg, and in that way are all icebergs formed. Mountains of ice formed by rain and snow—grand Arctic glaciers, undermined by the sea or by accumulation over-balanced—topple down upon the slightest provocation (moved by a shout, perhaps) and where they float, as this black looking fellow does, they need deep water. This berg in height is about ninety feet, and a due balance requires that a mass nine times as large as the part visible should be submerged. Icebergs are seen about us now which rise two hundred feet above the water's level.

There are above head plenty of aquatic birds; ashore, or on the ice, are bears, foxes, reindeer; and in the sea there are innumerable animals. We shall not see so much life near the North Pole, that is certain. It would be worth while to go ashore upon an islet there, near Vogel Sang, to pay a visit to the eider-ducks.

Their nests are so abundant that one cannot avoid treading upon them. When the duck is driven by a hungry fox to leave her eggs, she covers them with down, in order that they may not cool during her absence, and, moreover, glues the down into a case with a secretion supplied to her by Nature for that purpose. The deserted eggs are safe, for that secretion has an odour very disagreeable to the intruder's nose.

We still sail northward, among sheets of ice, whose boundaries are not beyond our vision from the mast-head—these are "floes;" between them we find easy way, it is fair "sailing ice." In the clear sky to the north a streak of lucid white light is the reflection from an icy surface; that is "ice-blink," in the language of these seas. The glare from snow is yellow, while open water gives a dark reflection.

Northward still; but now we are in fog; the ice is troublesome; a gale is rising. Now, if our ship had timbers they would crack, and if she had a bell it would be tolling; if we were shouting to each other we should not hear; the sea is in a fury. With wild force its breakers dash against a heaped-up wall of broken ice, that grinds and strains and battles fiercely with the water. This is "the pack," the edge of a great ice-field broken by the swell. It is a perilous and an exciting thing to push through pack ice in a gale.

Now there is ice as far as eye can see, that is "an ice field." Masses are forced up like colossal tombstones on all sides; our sailors call them "hummocks;" here and there the broken ice displays large "holes of water." Shall we go on? Upon this field, in 1827, Parry adventured with his men, to reach the North Pole, if that should be possible. With sledges and portable boats they laboured on, through snow; and over hummocks, launching

their boats over the larger holes of water. With stout hearts, undaunted by toil or danger, they went boldly on, though by degrees it became clear to the leaders of the expedition, that they were almost like mice upon a tread-mill cage, making a great expenditure of leg for little gain. The ice was floating to the south with them, as they were walking to the north; still they went on. Sleeping by day to avoid the glare, and to get greater warmth during the time of rest, and travelling by night,—watch-makers' days and nights, for it was all one polar day, the men soon were unable to distinguish noon from midnight. The great event of one day on this dreary waste, was the discovery of two flies upon an ice hummock; these, says Parry, became at once a topic of ridiculous importance. Presently, after twenty-three miles walking, they only had gone one mile forward, the ice having industriously floated twenty-two miles in the opposite direction; and then, after walking forward eleven miles, they found themselves to be three miles behind the place from which they started. The party accordingly returned, not having reached the Pole, not having reached the eighty-third parallel, for the attainment of which, there was a reward of a thousand pounds held out by government. They reached the parallel of eighty-two degrees, forty-five minutes, which was, and still is, the most northerly point trodden by the foot of man. From that point they returned. In those high latitudes they met with a phenomenon, common in alpine regions, as well as at the Pole, red snow. The red colour being caused by the abundance of a minute plant, of low development, the last dweller on the borders of the vegetable kingdom. Most interesting to the sailors was a fat she-bear which they killed and devoured with a zeal to be repented of; for on reaching navigable sea, and pushing in their boats to Table Island,

where some stones were left, they found that the bears had eaten all their bread, whereon the men agreed that "Bruin was now square with them." An Islet next to Table Island—they are both mere rocks—is the most northern land discovered. Therefore, Parry applied to it the name of Lieutenant—now Sir James—Ross. This compliment Sir James Ross has acknowledged in the most emphatic manner, by discovering on his part, at the other pole, the most southern land yet seen, and giving to it the name of Parry: "Parry Mountains."

It very probably would not be difficult under such circumstances, as Sir W. Parry has since recommended, to reach the North Pole along this route. Then (especially if it be true, as many believe, that there is a region of open sea about the Pole itself) we might find it as easy to reach Behring's Straits, by travelling in a straight line over the North Pole, as by threading the strait and bays north of America.

We turn our course until we have in sight a portion of the ice-barred eastern coast of Greenland, Shannon Island. Somewhere about this spot in the seventy-fifth parallel is the most northern part of that coast known to us. Colonel—then Captain—Sabine in the "Griper," was landed there to make magnetic, and other observations; for the same purpose he had previously visited Sierra Leone. That is where we differ from our forefathers. They commissioned hardy seamen to encounter peril for the search of gold ore, or for a near road to Cathay; but our peril is encountered for the gain of knowledge, for the highest kind of service that can now be rendered to the human race.

Before we leave the northern sea, we must not omit to mention the voyage by Spitzbergen northward, in 1818, of Captain Buchan in the "Dorothea," accompanied by Lieutenant Franklin,

in the "Trent." It was Sir John Franklin's first voyage to the Arctic regions. This trip forms the subject of a delightful book by Captain Beechey.

On our way to the south point of Greenland we pass near Cape North, a point of Iceland. Iceland, we know, is the centre of a volcanic region, whereof Norway and Greenland are at opposite points of the circumference. In connection with this district there is a remarkable fact; that by the agency of subterranean forces, a large portion of Norway and Sweden is being slowly upheaved. While Greenland, on the west coast, as gradually sinks into the sea, Norway rises at the rate of about four feet in a century. In Greenland, the sinking is so well known that the natives never build close to the water's edge, and the Moravian missionaries more than once have had to move farther inland the poles on which their boats are rested.

Our Phantom Ship stands fairly now along the western coast of Greenland into Davis Straits. We observe that upon this western coast there is, by a great deal, less ice than on the eastern. That is a rule generally. Not only the configuration of the straits and bays, but also the earth's rotation from west to east, causes the currents here to set towards the west, and wash the western coasts, while they act very little on the eastern. We steer across Davis Straits, among "an infinite number of great countreys and islands of yce;" there, near the entrance, we find Hudson Strait, which does not now concern us. Islands probably separate this well-known channel from Frobisher Strait to the north of it, yet unexplored. Here let us recall to mind the fleet of fifteen sail, under Sir Martin Frobisher, in 1578, tossing about and parting company among the ice. Let us remember how the crew of the "Anne Frances," in that expedition, built a pinnace

when their vessel struck upon a rock, although they wanted main timber and nails. How they made a mimic forge, and "for the easier making of nails, were forced to break their tongs, gridiron, and fire-shovel, in pieces." How Master Captain Best, in this frail bark, with its imperfect timbers held together by the metamorphosed gridiron and fire-shovel, continued in his duty, and did "depart up the straights as before was pretended." How a terrific storm arose, and the fleet parted, and the intrepid captain was towed "in his small pinnesse, at the stern of the 'Michael,' thorow the raging seas; for the bark was not able to receive, or relieve half his company." The "tongs, gridyron and fire-shovell," performed their work only for as many minutes as were absolutely necessary, for "the pinnesse came no sooner aboord the ship, and the men entred, but she presently shivered and fell in pieces, and sunke at the ship's stern with all the poor men's furniture."

Now, too, as we sail up the strait, explored a few years after these events by Master John Davis, how proudly we remember him as a right worthy forerunner of those countrymen of his and ours who since have sailed over his track. Nor ought we to pass on without calling to mind the melancholy fate, in 1606, of Master John Knight, driven, in the "Hopewell," among huge masses of ice with a tremendous surf, his rudder knocked away, his ship half full of water, at the entrance to these straits. Hoping to find a harbour, he set forth to explore a large island, and landed, leaving two men to watch the boat, while he, with three men and the mate, set forth and disappeared over a hill. For thirteen hours the watchers kept their post; one had his trumpet with him, for he was a trumpeter, the other had a gun. They trumpeted often and loudly; they fired, but no answer came. They

watched ashore all night for the return of their captain and his party, "but they came not at all."

The season is advanced. As we sail on, the sea steams like a lime-kiln, "frost-smoke" covers it. The water, cooled less rapidly, is warmer now than the surrounding air, and yields this vapour in consequence. By the time our vessel has reached Baffin's Bay, still coasting along Greenland, in addition to old floes and bergs, the water is beset with "pancake ice." That is the young ice when it first begins to cake upon the surface. Innocent enough it seems, but it is sadly clogging to the ships. It sticks about their sides like treacle on a fly's wing; collecting unequally, it destroys all equilibrium, and impedes the efforts of the steersman. Rocks split on the Greenland coast with loud explosions, and more icebergs fall. Icebergs we soon shall take our leave of; they are only found where there is a coast on which glaciers can form; they are good for nothing but to yield fresh water to the vessels; it will be all field, pack, and salt-water ice presently.

Now we are in Baffin's Bay, explored in the voyages of Bylot and Baffin, 1615-16. When, in 1817, a great movement in the Greenland ice caused many to believe that the northern passages would be found comparatively clear; and when, in consequence of this impression, Sir John Barrow succeeded in setting a-foot that course of modern Arctic exploration, which has been continued to the present day, Sir John Ross was the first man sent to find the north-west passage. Buchan and Parry were commissioned at the same time to attempt the North Sea route. Sir John Ross did little more on that occasion than effect a survey of Baffin's Bay, and prove the accuracy of the ancient pilot. In the extreme north of the bay there is an inlet or a

channel, called by Baffin, Smith's Sound; this Sir John saw, but did not enter. It never yet has been explored. It may be an inlet only; but it is also very possible that by this channel ships might get into the polar sea and sail by the north shore of Greenland to Spitzbergen. Turning that corner, and descending along the western coast of Baffin's Bay, there is another inlet called Jones' Sound by Baffin, also unexplored. These two inlets, with their very British titles, Smith and Jones, are of exceeding interest. Jones' Sound may lead by a back way to Melville Island. South of Jones' Sound there is a wide break in the shore, a great sound, named by Baffin, Lancaster's, which Sir John Ross, in that first expedition, failed also to explore. Like our transatlantic friends at the South Pole, he laid down a range of clouds as mountains, and considered the way impervious; so he came home. Parry went out next year, as a lieutenant, in command of his first and most successful expedition. He sailed up Lancaster Sound, which was in that year (1819), unusually clear of ice; and he is the discoverer whose track we now follow in our Phantom Ship. The whole ground being new, he had to name the points of country right and left of him. The way was broad and open, due west, a most prosperous beginning for a north-west passage. If this continued, he would soon reach Behring's Strait. A broad channel to the right, directed, that is to say, southward, he entered on the Prince of Wales's birthday, and so called it the "Prince Regent's Inlet." After exploring this for some miles, he turned back to resume his western course, for still there was a broad strait leading westward. This second part of Lancaster Sound, he called after the Secretary of the Admiralty who had so indefatigably laboured to promote the expeditions, Barrow's Strait. Then he came to a

channel, turning to the right or northward, and he named that Wellington Channel. Then he had on his right hand ice, islands large and small, and intervening channels; on the left, ice, and a cape visible, Cape Walker. At an island, named after the First Lord of Admiralty Melville Island, the great frozen wilderness barred farther progress. There he wintered. On the coast of Melville Island they had passed the latitude of one hundred and ten degrees, and the men had become entitled to a royal bounty of five thousand pounds. This group of islands Parry called North Georgian, but they are usually called by his own name, Parry Islands. This was the first European winter party in the Arctic circle. Its details are familiar enough. How the men cut in three days through ice seven inches thick, a canal two miles and a half long, and so brought the ships into safe harbour. How the genius of Parry equalled the occasion; how there was established a theatre and a "North Georgian Gazette," to cheer the tediousness of a night which continued for two thousand hours. The dreary dazzling waste in which there was that little patch of life, the stars, the fog, the moonlight, the glittering wonder of the northern lights, in which, as Greenlanders believe, souls of the wicked dance tormented, are familiar to us. The she-bear stays at home; but the he-bear hungers, and looks in vain for a stray seal or walrus—woe to the unarmed man who meets him in his hungry mood! Wolves are abroad, and pretty white arctic foxes. The reindeer have sought other pasture-ground. The thermometer runs down to more than sixty degrees below freezing, a temperature tolerable in calm weather, but distressing in a wind. The eye-piece of the telescope must be protected now with leather, for the skin is destroyed that comes in contact with cold metal. The voice at a mile's

distance can be heard distinctly. Happy the day when first the sun is seen to graze the edge of the horizon; but summer must come, and the heat of a constant day must accumulate, and summer wane, before the ice is melted. Then the ice cracks, like cannons over-charged, and moves with a loud grinding noise. But not yet is escape to be made with safety. After a detention of ten months, Parry got free; but, in escaping, narrowly missed the destruction of both ships, by their being "nipped" between the mighty mass and the unyielding shore. What animals are found on Melville Island, we may judge from the results of sport during ten months' detention. The island exceeds five thousand miles square, and yielded to the gun, three musk oxen, twenty-four deer, sixty-eight hares, fifty-three geese, fifty-nine ducks, and one hundred and forty-four ptarmigans, weighing together three thousand seven hundred and sixty-six pounds—not quite two ounces of meat per day to every man. Lichens, stunted grass, saxifrage, and a feeble willow, are the plants of Melville Island, but in sheltered nooks there are found sorrel, poppy, and a yellow butter-cup. Halos and double suns are very common consequences of refraction in this quarter of the world. Franklin returned from his first and most famous voyage with his men all safe and sound, except the loss of a few fingers, frost-bitten. We sail back only as far as Regent's Inlet, being bound for Behring's Strait. The reputation of Sir John Ross' being clouded by the discontent expressed against his first expedition, Mr. Felix Booth, a rich distiller, provided seventeen thousand pounds to enable his friend to redeem his credit. Sir John accordingly, in 1829, went out in the "Victory," provided with steam machinery that did not answer well. He was accompanied by Sir James Ross, his nephew. He it was who,

on this occasion, first surveyed Regent's Inlet, down which we are now sailing with our Phantom Ship. The coast on our right hand, westward, which Parry saw, is called North Somerset, but farther south, where the inlet widens, the land is named Boothia Felix. Five years before this, Parry, in his third voyage, had attempted to pass down Regent's Inlet, where, among ice and storm, one of his ships, the "Hecla," had been driven violently ashore, and of necessity, abandoned. The stores had been removed, and Sir John was able now to replenish his own vessel from them. Rounding a point at the bottom of Prince Regent's Inlet, we find Felix Harbour, where Sir John Ross wintered. His nephew made from this point scientific explorations; discovered a strait called after him the Strait of James Ross, and on the northern shore of this strait, on the main land of Boothia, planted the British flag on the Northern Magnetic Pole. The ice broke up, so did the "Victory;" after a hair-breadth escape, the party found a searching vessel, and arrived home after an absence of four years and five months, Sir John Ross having lost his ship, and won his reputation. The friend in need was made a baronet for his munificence; Sir John was reimbursed for all his losses, and the crew liberally taken care of. Sir James Ross had a rod and flag signifying "Magnetic Pole," given to him for a new crest, by the Heralds' College, for which he was no doubt greatly the better.

We have sailed northward to get into Hudson Strait, the high road into Hudson Bay. Along the shore are Esquimaux in boats, extremely active, but these filthy creatures we pass by; the Esquimaux in Hudson Strait are like the negroes of the coast, demoralised by intercourse with European traders. These are not true pictures of the loving children of the north. Our

"Phantom" floats on the wide waters of Hudson Bay—the grave of its discoverer. Familiar as the story is of Henry Hudson's fate, for John King's sake how gladly we repeat it. While sailing on the waters he discovered, in 1611, his men mutinied; the mutiny was aided by Henry Green, a prodigal, whom Hudson had generously shielded from ruin. Hudson, the master, and his son, with six sick or disabled members of the crew, were driven from their cabins, forced into a little shallop, and committed helpless to the water and the ice. But there was one stout man, John King, the carpenter, who stepped into the boat, abjuring his companions, and chose rather to die than even passively be partaker in so foul a crime. John King, we who live after, will remember you.

Here on an island, Charlton Island, near our entrance to the bay, in 1631, wintered poor Captain James with his wrecked crew. This is a point outside the Arctic circle, but quite cold enough. Of nights, with a good fire in the house they built, hoar frost covered their beds, and the cook's water in a metal pan before the fire, was warm on one side and froze on the other. Here "it snowed and froze extremely, at which time we, looking from the shore towards the ship, she appeared a piece of ice in the fashion of a ship, or a ship resembling a piece of ice." Here the gunner, who had lost his leg, besought that "for the little time he had to live, he might drink sack altogether." He died and was buried in the ice far from the vessel, but when afterwards two more were dead of scurvy, and the others, in a miserable state, were working with faint hope about their shattered vessel, the gunner was found to have returned home to the old vessel; his leg had penetrated through a port-hole. They "digged him clear out, and he was as free from noisomeness,"

the record says, "as when we first committed him to the sea. This alteration had the ice, and water, and time, only wrought on him, that his flesh would slip up and down upon his bones, like a glove on a man's hand. In the evening we buried him by the others." These worthy souls, laid up with the agonies of scurvy, knew that in action was their only hope; they forced their limbs to labour, among ice and water, every day. They set about the building of a boat, but the hard frozen wood had broken all their axes, so they made shift with the pieces. To fell a tree, it was first requisite to light a fire around it, and the carpenter could only labor with his wood over a fire, or else it was like stone under his tools. Before the boat was made they buried the carpenter. The captain exhorted them to put their trust in God; "His will be done. If it be our fortune to end our days here, we are as near Heaven as in England. They all protested to work to the utmost of their strength, and that they would refuse nothing that I should order them to do to the utmost hazard of their lives. I thanked them all." Truly the North Pole has its triumphs. If we took no account of the fields of trade opened by our Arctic explorers, if we thought nothing of the wants of science in comparison with the lives lost in supplying them, is not the loss of life a gain, which proves and tests the fortitude of noble hearts, and teaches us respect for human nature? All the lives that have been lost among these Polar regions, are less in number than the dead upon a battle-field. The battle-field inflicted shame upon our race—is it with shame that our hearts throb in following these Arctic heroes? March 31st, says Captain James, "was very cold, with snow and hail, which pinched our sick men more than any time this year. This evening, being May eve, we returned late from our work to our house, and made a

good fire, and chose ladies, and ceremoniously wore their names in our caps, endeavouring to revive ourselves by any means. On the 15th, I manured a little patch of ground that was bare of snow, and sowed it with pease, hoping to have some shortly to eat, for as yet we could see no green thing to comfort us." Those pease saved the party; as they came up the young shoots were boiled and eaten, so their health began to mend, and they recovered from the scurvy. Eventually, after other perils, they succeeded in making their escape.

A strait, called Sir Thomas Rowe's Welcome, leads due north out of Hudson's Bay, being parted by Southampton Island from the strait through which we entered. Its name is quaint, for so was its discoverer, Luke Fox, a worthy man, addicted much to euphuism. Fox sailed from London in the same year in which James sailed from Bristol. They were rivals. Meeting in Davis Straits, Fox dined on board his friendly rival's vessel, which was very unfit for the service upon which it went. The sea washed over them and came into the cabin, so says Fox, "sauce would not have been wanted if there had been roast mutton." Luke Fox being ice-bound and in peril, writes, "God thinks upon our imprisonment with a *supersedeas*;" but he was a good and honourable man as well as euphuist. His "Sir Thomas Rowe's Welcome," leads into Fox Channel; our "Phantom Ship" is pushing through the welcome passes on the left-hand Repulse Bay. This portion of the Arctic regions, with Fox Channel, is extremely perilous. Here Captain Lyon, in the "Griper," was thrown anchorless upon the mercy of a stormy sea, ice crashing around him. One island in Fox Channel is called Mill Island, from the incessant grinding of great masses of ice collected there. In the northern part of Fox Channel, on the western shore, is

Melville Peninsula, where Parry wintered on his second voyage. Here let us go ashore and see a little colony of Esquimaux.

Their huts are built of blocks of snow, and arched, having an ice pane for a window. They construct their arched entrance and their hemispherical roof, on the true principles of architecture. Those wise men, the Egyptians, made their arch by hewing the stones out of shape, the Esquimaux have the true secret. Here they are, with little food in winter and great appetites; devouring a whole walrus when they get it, and taking the chance of hunger for the next eight days—hungry or full, for ever happy in their lot—here are the Esquimaux. They are warmly clothed, each in a double suit of skins sewn neatly together. Some are singing, with good voices, too. Please them, and they straightway dance; activity is good in a cold climate. Play to them on the flute, or if you can sing well, sing, or turn a barrel-organ, they are mute, eager with wonder and delight; their love of music is intense. Give them a pencil, and, like children, they will draw. Teach them and they will learn, oblige them and they will be grateful. "Gentle and loving savages," one of our old worthies called them, and the Portuguese were so much impressed with their teachable and gentle conduct, that a Venetian ambassador writes, "His serene majesty contemplates deriving great advantage from the country, not only on account of the timber of which he has occasion, but of the inhabitants, who are admirably calculated for labour, and are the best I have ever seen." The Esquimaux, of course, will learn vice, and in the region visited by whale ships, vice enough has certainly been taught him. Here are the dogs, who will eat old coats, or anything; and, near the dwellings, here is a snow-bunting,—robin redbreast of the Arctic lands. A party of our sailors once, on landing, took some sticks from a large heap,

and uncovered the nest of a snow-bunting with young; the bird flew to a little distance, but seeing that the men sat down and harmed her not, continued to seek food and supply her little ones, with full faith in the good intentions of the party. Captain Lyon found a child's grave partly uncovered, and a snow-bunting had built its nest upon the infant's bosom.

Sailing round Melville Peninsula, we come into the Gulf of Akkolee, through Fury and Hecla Straits, discovered by Parry. So we get back to the bottom of Regent's Inlet which we quitted a short time ago, and sailing in the neighbourhood of the magnetic pole, we reach the estuary of Back's River, on the north-east coast of America. We pass then through a strait, discovered in 1839, by Dean and Simpson, still coasting along the northern shore of America, on the Great Stinking Lake, as Indians call this ocean. Boats, ice permitting, and our "Phantom Ship," of course, can coast all the way to Behring's Strait. The whole coast has been explored by Sir John Franklin, Sir John Richardson, and Sir George Back, who have earned their knighthoods through great peril. As we pass Coronation Gulf—the scene of Franklin, Richardson, and Back's first exploration from the Coppermine River—we revert to the romantic story of their journey back, over a land of snow and frost, subsisting upon lichens with companions starved to death, where they plucked wild leaves for tea, and ate their shoes for supper; the tragedy by the river; the murder of poor Hood, with a book of prayers in his hand; Franklin at Fort Enterprise, with two companions at the point of death, himself gaunt, hollow-eyed, feeding on pounded bones, raked from the dunghill; the arrival of Dr. Richardson and the brave sailor; their awful story of the cannibal Michel;—we revert to these things with a shudder. But we must continue on our

route. The current stills flows westward, bearing now large quantities of drift wood, out of the Mackenzie River. At the name of Sir Alexander Mackenzie, also, we might pause, and talk over the bold achievements of another Arctic hero; but we pass on, by a rugged and inhospitable coast, unfit for vessels of large draught,—pass the broad mouth of the Youcon, pass Point Barrow, Icy Cape, and are in Behring's Strait. Had we passed on, we should have found the Russian Arctic coast line, traced out by a series of Russian explorers; of whom the most illustrious —Baron Von Wrangell—states, that beyond a certain distance to the northward, there is always found what he calls the *Polynja* (open water). This is the fact adduced by those who adhere to the old fancy that there is a sea about the pole itself quite free from ice.

We pass through Behring's Straits. Behring, a Dane by birth, but in the Russian service, died here in 1741, upon the scene of his discovery. He and his crew, victims of scurvy, were unable to manage their vessel in a storm; and it was at length wrecked on a barren island, there, where "want, nakedness, cold, sickness, impatience, and despair, were their daily guests." Behring, his lieutenant, and the master died.

Now we must put a girdle round the world, and do it with the speed of Ariel. Here we are already in the heats of the equator. We can do no more than remark, that if air and water are heated at the equator, and frozen at the poles, there will be equilibrium destroyed, and constant currents caused. And so it happens, so we get the prevailing winds, and all the currents of the ocean. Of these, some of the uses, but by no means all, are obvious. We urge our "Phantom" fleetly to the southern pole. Here, over the other hemisphere of the earth, there shines another

hemisphere of heaven. The stars are changed; the southern cross, the Magellanic clouds, the "coal-sack" in the milky way, attract our notice. Now we are in the southern latitude that corresponds to England in the north; nay, at a greater distance from the pole, we find Kerguelen's Land, emphatically called "The Isle of Desolation." Icebergs float much further into the warm sea on this side of the equator, before they dissolve. The South Pole is evidently a more thorough refrigerator than the North. Why is this? We shall soon see. We push through pack-ice, and through floes and fields, by lofty bergs, by an island or two covered with penguins, until there lies before us a long range of mountains, nine or ten thousand feet in height, and all clad in eternal snow. That is a portion of the Southern Continent. Lieutenant Wilkes, in the American exploring expedition, first discovered this, and mapped out some part of the coast, putting a few clouds in likewise,—a mistake easily made by those who omit to verify every foot of land. Sir James Ross, in his most successful South Pole Expedition, during the years 1839–43, sailed over some of this land and confirmed the rest. The Antarctic, as well as the Arctic honours he secured for England, by turning a corner of the land, and sailing far southward, along an impenetrable icy barrier, to the latitude of seventy-eight degrees, nine minutes. It is an elevated continent, with many lofty ranges. In the extreme southern point reached by the ships, a magnificent volcano was seen spouting fire and smoke out of the everlasting snow. This volcano, twelve thousand four hundred feet high, was named Mount Erebus; for the "Erebus" and "Terror," now sought anxiously among the bays, and sounds, and creeks of the North Pole, then coasted by the solid ice walls of the south. Only as "Phantoms" can we cross this land and

live. These lofty mountain ranges, cold to the marrow, these vast glaciers and elevated plains of ice, no wonder that they cast a chill about their neighbourhood. Our very ghosts are cold, and the volcanoes only make the frost colder by contrast. We descend upon the other side, take ship again, and float up the Atlantic, through the tropics. We have been round the world now, and among the ice, and have not grown much older since we started.

My Pearl-Fishing Expedition.

CEYLON has for centuries been famed for the richness and value of its pearls. Its oyster banks are said to have furnished those which the voluptuous Cleopatra quaffed in her wine to the health of Marc Antony. The "Barbaric Pearl" was ever a favourite ornament amongst the Greek and Roman ladies; and it is still as highly prized by the native princes of India. The most costly produce of the Ceylon Pearl Fisheries is carried, by Moorish and Hindoo traders, to the Indian Continent: the least valuable are mostly exported to the countries of Europe.

The reader need hardly be informed that the pearl is a substance found secreted in the flesh of a peculiar species of non-edible oyster, which is met with on the north-west coast of Ceylon, as well as in the Persian Gulf, in the Sooloo Islands, on the coast of Algiers, in the Bay of Panama, and in one or two other places. These oysters are more prettily shaped than the edible oysters of this country. The interior of the shell has a most beautiful mother-o'-pearl appearance. The finest pearls are usually found in the beard of the oyster, whilst the smaller varieties, and those known as *seed pearls*, are met with in the thick part of the flesh. Some have been seen as large as pistol-bullets, and one is on record as having been worth one hundred and ten thousand pounds. The average value, however, of the middling sizes is about three or four pounds; whilst the smaller sizes are to be had for a few shillings.

Since the possession of Ceylon by the British, the Pearl Fishery has proved a source of considerable revenue to the Government; yielding, occasionally, as much as eighty thousand pounds per annum. The season for fishing is during the month of March; just when the force of the north-east monsoon has passed over, and previous to the first appearance of the south-west winds. The oyster banks are situated off a point of land called Aripo, on the west coast of the island, far to the north of Colombo, and not very distant from "Adam's Bridge;" a ridge of rocks crossing the Samubin Channel, nearly from Ceylon to the most southern point of the Indian Continent. The Banks are numerous and mostly of but a few miles in extent; they are out of sight of land, which is here very low, so that to fish them requires some degree of experience and skill. The exclusive right to this Fishery rests with the Ceylon Government; and this right was, for many years, sold by public auction or by private tenders, to native renters. In more recent times the Government fished the Banks on their own account, disposing of the oysters, as brought on shore, by auction.

On the 25th of February, 1836, I arrived in the Bay of Condaletry, the anchorage of Aripo, a passenger on board the Government barque "Wellington," of whose commander I was the guest. The Inspector of the Pearl Banks was also on board, with his own boat and crew; his lugger was fitted up very comfortably with awnings and cushions, precautions I soon found highly necessary on such service.

Early the next morning I landed with the Inspector at Silawatorre, a small village, distant a few miles from the station at Aripo. This was a most miserable little place, consisting of but a single row of small mud huts, standing in hot and dusty soli-

tude, with a few lonely parched up palms near them; but far as the eye could reach, inland or coastwise, there was nothing to break the monotony of endless sand-plains, save the distant white walls of the "Doric;" a lofty, stuccoed Government building near Aripo, which glistened and shone so brilliantly in the rays of the morning sun as to make one's eyes blink again. For miles around lay countless heaps of snowy oyster shells, bleached by the suns of many monsoons. Ridge over ridge, heap upon heap, they seemed to have no end; and one might well have imagined that, in years long past, some conflicting armies of oysters had met to do battle on those sea-washed sands, and left their many hecatombs of slain unburied on those wastes.

There were a few dirty women, and thin-faced children on the beach, whose curiosity had for the moment overcome their sloth. Further on under three palms, stood the *Adapanaar* of Aripo, or headman of the district; a fine grey-bearded old man, attended by his deputy the *Maniagar*, and a few seedy looking followers armed to the teeth with paper umbrellas and painted sticks. The inspector adjourned with these strange-looking officials to a thatched open bungalow, by a small flag-staff, where they were soon engrossed in details respecting the approaching fishery. The scene was altogether so desolate and uninteresting, and the sun was becoming so powerful, that I was glad to return to the ship by the first opportunity—a native canoe.

The following morning we stood out for the "Banks," near which the anchor was dropped, and for several days, the Inspector and his boat's crew were occupied in placing buoys with little blue and red flags attached, upon the edges of the several beds which were to be poked. The weather was oppressively hot; the sky was without a cloud to break the intensity of the sun's

rays; the sea-breeze blew faintly and fitfully, scarcely rippling the surface of the water, which seemed as though it were a sea of some molten metal.

On the 5th of March we returned to our anchorage in Condaletry Bay; but this time closer to the shore. I could not help being amused at the pantomimic change which had, during our absence, come over the dull mud-village and dusty plains on shore. It was as though Harlequin had, with his wand, transformed all those piles of shells I had left on the beach, into living masses of dusky human beings. The Genius of the Wonderful Lamp must have given his vessel an extra rub, and conjured up the inhabitants of some subterranean world to astonish us on our return. The very sands of the plain seemed to be redolent of life. The miserable row of low, dirty huts had either been levelled to the ground, or were hidden from sight by numberless gaily-coloured booths or *Pandals*, of all sorts of shapes and sizes, ornamented with the pale green leaves of the Palmyra and Cocoa Palm, and long stripes of white cloth. There were thousands of natives flocking and struggling down to the beach, as though they expected us to bring on shore all the wealth of the Pearl Banks. Our anchorage-ground was opposite the little flag-staff; and, about us as thick as they could be moored, lay fully two hundred native boats of various sizes, though of one build, being a sort of rakish-looking barge; so sharp and knowing, both forwards and aft, that one might have imagined them to have been bloated and corpulent London wherries. They were each manned by ten oarsmen, a *Tandal* or steersman, and his deputy, besides a cooley for baling out the water; for most of these crafts leak freely. They measure from eight to twelve tons, yet there are very few nails about them; the omnipotent

cocoa-nut fibre serving to fasten nearly all Cingalese vessels and boats together.

I could not resist the temptation presented by the motley scene on shore. Accordingly, towards the evening, I landed, and mixed amongst the busy, endless throng. It seemed almost incredible that the gay place I then beheld, could have been the same that not many days since I had left so silent and desolate. There was the flag-staff, however, now enclosed by a broken fence, and guarded by a detachment of Malay riflemen. Further off, towering high above the *Pandals* and bazaars, were the dazzling white walls of the Doric. It was with the utmost difficulty that I forced my way through the dense moving mass; the noise, the crowd, the heat, the smell, the motley colours, all served to annoy and perplex, whilst they amused. All these thousands were congregated to share in, or derive some profit from the fishery about to take place. All appeared anxious to learn if the day had been fixed; how many boats would be employed; and for how long. A few of the more respectable traders passed around me, in the hope of gathering some information on these points; but in vain. Wealthy Hindoo merchants; Moormen and Malabar Chettys from the opposite coasts of India; Parawa traders from the Madura shore; Arabs, Banians, and Parsees, from Bombay and Madras; dealers from the Persian Gulf; Tamils, Jews, Chinese, Portuguese, Dutch, half-castes, Cingalese, Malays; all were there, in their many gaily-coloured and varied costumes, making up what might well have been taken for a masquerade in the open air.

Long rows of bazaars stretched as far as the eye could reach; gaudily decorated, and filled to the roof with wares and merchandise of every conceivable kind, as though the swarms of visitors

were expected to dwell there for a twelvemonth at least. Booths full of sweet-meats, strong liquors, and native drinks, tempted the hungry and the thirsty on all sides. In the middle stood a rather humble sized building, with a white flag flying from one corner of its leafy roof, and strings of little lamps and flowers hung across the doorway. The sound of heavy tom-toms, and shrilly-shrieking pipes, resounded from within, and told plainly enough its sacred character. It was a temple hastily erected by the priests of the shrine of Ramisseram—a famed sanctuary on the Indian shore—where, it is said by Bramin legends, Adam rested ere passing over to Ceylon to end his days. Further on was a Buddhist temple, with its yellow and white flowers, cloths and flags, and its yellow-robed, bald-headed, keen-eyed, old priests. These gentry reap a rich harvest during the fishery by ordinary offerings, the sale of charms for the divers, and lucky "*olahs*" for those who intend to bid for oysters. Besides all these sources of income, the priests lay claim to charity, or temple oysters, a small proportion from each boat-load out of the divers' shares, and which most of the natives are weak and ignorant enough to concede to them.

At one of the large ornamental arrack-booths, a crowd of boatmen and divers was assembled, listening to the lusty harangue from a tall ungainly figure, I could scarcely distinguish amidst so many in the throng. I found out that he was a Shark-Charmer, and reaped no little gain from his vocation. The divers, I learnt, were so persuaded of his mystic powers over the monsters of the deep, that no bribes or threats would induce them to venture into the sea without his presence. This "Charmer" stood quite six feet high, a dark, long-haired Bramin, with bright, cat-like eyes, and heavy, shaggy eyebrows. His black hair was

matted together with dirt and filth; his skin was marked in many places with mysterious characters in chalk: his brawny neck and arms were ornamented with strings of heavy black beads. It was hardly to be wondered at, that such a character should possess some influence over the benighted Indians—the boatmen and divers; it was not difficult, however, to perceive that most of his excitement was derived from the little squat bottles which graced the dirty shelves of the Arrack Bazaar.

After a lapse of four days, spent by the Inspector, the Magistrate of the District, the Government Agent, and the *Adapanaar*, in various arrangements;—in publishing notices and issuing instructions connected with the fishery—the first diving day was determined on, and the boats, to the number of two hundred, were forthwith put in readiness.

The day previous to the fishery, the "Wellington" once more stood out for the "Banks," with the Inspector and Government Agent on board. The boats, with their respective complements of divers, were to leave precisely at midnight, so as to arrive on the banks before day-light, the wind being at that time off the land and in their favour. In order to see as much as possible of their proceedings, I remained to accompany the fleet with the old *Adapanaar* in his ten-oared cutter. I lay down at dusk in a small shed attached to the temporary military quarters, intending to snatch a few hours' repose. But I soon found sleep was quite out of the question; the noise in the bazaars was greater than ever, and it was with an effort that I made myself heard by the attendants, above the din of voices, tom-toms and pipes. I walked out and found the boatmen and divers, far from attempting any rest previous to their heavy labours, merry-making on the sea beach. Many were dancing, many beating time on

the tom-tom; hundreds were chaunting their wild songs, and all had been well supplied with toddy and arrack. The night was pitchy dark, and but few stars were visible over the bright glare of many torches. A huge bonfire blazed over the flag-staff, lighting up bazaars, palm-trees, and temples, in one lurid glare, and flinging a few rays on the distant shining walls of the Doric. The Shark-Charmer, too, stood in all his glory, on the summit of one of the vast heaps of blanched oyster shells; he was holding forth to the assembled crowd with shouts and wild gesticulations, and as the glare of the fire shot past him, he appeared to be clothed in flame, while his gaunt arms flung titanic shadows along the distant plain, like those of a monster windmill hard at work in the midnight breeze.

The appointed time drew near; a gong sent forth a few notes of thunder, and with magic suddenness the dancing, singing, and drinking ceased. The Shark-Charmer stole away, no one knew where; some thought to pray, more probably into the Arrack Bazaar; the boatmen, divers, and government Peons, crowding down the beach and through the water, passed to their appointed posts in the boats. More than four thousand human beings packed themselves into those frail-looking craft, and yet they were not so crowded as not to leave room for the oysters. The *Adapanaar* led me to his cutter; we seated ourselves, and he gave orders to the head *Tandal*, or commodore of the fleet, to make all ready. Then arose a low indistinct murmur, which gradually swelled into hollow thunder: the echo of thousands of voices. The boatmen rose up on their benches, flung high their arms, opened their huge mouths and rolled their shining eyes. What could all this mean? Was it a revolt? No,—the Shark-Charmer was missing from his post; without his potent presence not a boat

of all the fleet would put to sea. A detachment of Peons, and a few Malay riflemen were despatched in search of the "holy" truant. In a few minutes they returned leading the charmer of the deep staggering along in a most mysterious manner, and flinging his arms about him as though possessed. The Peons rolled him very unceremoniously into one of the largest boats, where he fell on the flooring with a heavy crash.

The *Adapanaar* gave the final signal amidst a momentary hush; and a small field-piece was fired from the base of the flag-staff, half-a-dozen rockets shot into the air and scattered themselves in a thousand stars over our heads, and away went the two hundred boats in gallant style! A loud discordant shout was raised on shore, answered lustily by the crews and divers, and then all was still again. The land breeze was fresh; the water smooth as glass; and our fleet made rapid way. The large yellow bamboo masts, pointed high in air, with their enormous, beautifully white transparent sails filling with the breeze, and lit up by the bonfire on shore, seemed as though they were a host of huge winged creatures of the deep, hastening to their sea-homes far away. On the soft cushions of our roomy craft, I laid me down beneath the awning's shade, and slept some quiet hours. I started from my rest on hearing some one near me giving orders in a loud voice. It was still dark, and looking out I perceived a bright small light not very far distant. It was a signal-light at the mast-head of the "Wellington." We were close to the "Banks," and in a few minutes I was on board the vessel. The fleet went astern, and there quietly awaited day-light. By the time we had sipped a cup of hot coffee, and smoked a cheroot, it was broad daylight, and then a move was made. I passed once more to the soft cushions of the cutter, the *Adapanaar* saw all

ready, and in a few minutes a gun was fired, and off we went as before.

The fishing-grounds lay above half a mile a-head of the bark, and arriving on them, it occupied some time to arrange the many boats in proper order, so as to prevent delay or confusion. The sun had risen, bright and gorgeous, over the land. All eyes were turned towards the "Wellington," awaiting the expected signal to commence operations. Five divers in each boat were mounted on the gunwales, armed with their diving-stones, nets, and ropes; the remaining five stood eagerly watching them. The Inspector was standing on the vessel's poop—the boatswain by his side, with the signal halyards in his hands. Minutes seemed hours. At last there was a move on deck, and the signal-flag rose slowly upwards; the union-jack fluttered in the morning breeze, and just as it touched the mast-head, a thousand divers, with their stones and nets, plunged silently into the sea. I shall not easily forget the sensation I experienced when I saw the crowd of human beings sink, as by magic, in the depths below, leaving but a few bubbles to mark their downward path. I pulled out my watch; a minute elapsed, and not one of all the thousand appeared; a minute and a quarter—a minute and a half—three quarters—two minutes—still not a soul rose to the surface. I dreaded some fearful calamity. Two minutes and a quarter had flown; the drops of perspiration gathered thickly on my forehead; my hands trembled, so that I could scarce hold my watch. I turned to the *Adapanaar* in an agony of anxiety, for he was sitting calm and quiet as an oyster. How gladly my heart beat when I saw first a dozen heads and shoulders, then fifty, then five hundred and more, ascend to the surface, bubbling and spluttering, as well they might after such a submarine excursion. And then

the bustle and excitement began in good earnest, on all sides. The boatmen helped to pull in the nets full of oysters: the divers, but little fatigued, climbed over the boats' sides, and saw their fish counted into distinct heaps by the Peon in charge of the boat. Each net appeared to have brought up from fifty to seventy oysters. As the last of the divers came over the boats' sides, the five hundred who had quietly waited their turn rose up, and, with their nets and stones, plunged in as their comrades had before them, as rapidly and as silently.

The arrangements for diving are exceedingly simple:—the diving-stone is a piece of granite, conical-shaped, and weighing about ten pounds; through one end of it a double cord of coir is rove, of sufficient length to reach the bottom easily, one end of it being secured to the boat. When about to plunge in, the diver places his right foot on the stone and between the double cord, using it as a stirrup; the weight suffices to hasten his descent, and on arriving at the bottom, the stone is cast away and pulled up by the boatman, so as to be clear of the net-rope: this rope is stouter, and single. The diver seizes the hoop of the net firmly between the toes of his left foot—for the natives use their toes as actively as we do our fingers; and when on the bank below, grasps the net in his left hand, flings himself flat on his face, and sweeps the oysters rapidly into his coir bag with his right hand. When he has secured sufficient fish, he gives his comrades above the signal by jerking the net-rope; they immediately commence hauling it in. To give himself an impetus upwards, the diver lays hold of the net for a second or two, then raises his hands together above his head, and rapidly floats to the surface.

From the commencement of the diving, the old Shark-Charmer had stationed himself on the stern of his boat, which was in

the centre of the fleet; occasionally he muttered a short prayer or charm, flourishing his long arms about in his accustomed manner; but at intervals he descended to sip something from a cocoa-nut shell bottle, doubtless to aid him in his exorcisms. During one of his potations, and about one hour before mid-day, we were suddenly startled by hearing a shrieking and howling in one of the distant boats, followed by a terrible commotion, and loud cries of—"The Shark! The Shark!" Our boat was immediately pulled to the scene of commotion, and there, sure enough, one of those monsters of the deep had been at work. A poor diver was being pulled into the boat, lacerated, and bleeding profusely, the water all around being deeply tinged with blood. One leg was nearly severed from his body, and the pain had caused him to faint away. The alarm went rapidly round from boat to boat; the divers left the water, and it was soon evident that there would be no more fishing on that day. So effectually did the accident paralyse that mass of people, that all, with one accord, sat gazing vacantly at each other, neither speaking nor moving. After a time, some of the boats, without orders, began to leave the fishing ground, and were soon followed by the rest, making their way to the "Wellington." The Inspector was too well acquainted with native prejudice to attempt any expostulation on this diversion: he, however, sent for the old Shark-Charmer, who attended the summons with the utmost effrontery. In reply to the question, how he dared to permit a shark to injure a diver in the employ of the British Government, he said there were some spirits adverse to the powers he possessed; and that, during the brief time of his taking a little refreshment, one of those antagonists had broken his charm and unloosed the jaws of the shark! All was now vain—no more fish-

ing; and, although the sea breeze was still lagging lazily behind, the fleet pushed shorewards, the boatmen plying their oars for a few miles. An hour later the breeze came up from the south-west—fitfully at first—then steadily up went the great spider-legged bamboo masts and the wide winged sails and the sharp-nosed boats slipped noiselessly landward.

Our approach to the shore was signalised by a gun; thousands were again on the beach awaiting our coming, and anxious to hear of our success. As we drew near, a long, wild shout rent the air; then a pause. No reply was given from the boats, the spirits of all were depressed by the accident, not so much from sympathy with the poor sufferer, as from a feeling that the accident at so early a stage was a bad omen.

The whole of the fleet having reached the shore, a party of Malay riflemen and Peons cleared an open space between them and the crowd on the beach, so as to allow the unloading of the boats, which was at once commenced. The oysters were divided on the sandy shore, into four equal parts, three of which went to the Government, or the renter, as the case might be; the remaining fourth was shared amongst the boatmen, the divers, the *Tandal* and the boat-owner; the divers receiving twice as much as the boatmen, and the owner rather more than the divers. The Government oysters were carried up in baskets to large bamboo enclosures, called *Cottoos*, where they were kept until sold by auction on the following day. The native shares of the fish were disposed of in a similar way; though sometimes they were retained by their owners on their own account, and the pearls found in them sold afterwards.

I did not go off to the next day's fishing, being desirous of witnessing the oyster auction; the boats, however, went as before.

the Shark Charmer having woven a spell of extra potency; which, it was said, would astonish the marine monsters, and secure their jaws as effectually as if fastened by Chubb's detector locks. The biddings were carried on with an eagerness almost amounting to frenzy. The oysters were offered in lots of one thousand, taken from the *Cottoos* indiscriminately. Some fine looking fellows went as high as six pounds the thousand; many, however, were knocked down for half that price, and not a few realised no more than fifteen shillings a lot, about the price of ordinary native oysters in England. Had the bidders believed that their admission into Paradise depended on their obtaining a few lots of these oysters, their mad excitement could scarcely have been exceeded. One old man, a Moorman, I particularly noticed. His entire suit of wearing apparel could hardly have been worth one of the oysters he had been bidding for. Avarice was deeply marked in his sharp features; and when he at last succeeded in obtaining one lot, I thought he would have gone wild with joy. He leaped about, danced, laughed, and sung bits of old musty ditties. Nor was he quiet until he had removed his heap to a miserable little shed hard by. There he sat down, close beside his lot of fish, and burying his head between his hands with the elbows resting on his knees, remained contemplating his little fortune, longing, yet half afraid, to open some of them. I left him thus gazing on the oysters, as though each living thing held his own life and immortality within its rocky shell.

There were many wealthy traders there from all parts of India; but many more had with difficulty scraped together sums varying from a dozen pagodas to a dozen dollars; men who had purchased or borrowed the means of bidding at this intoxicating

auction; men who had left their famished families without the means of obtaining a mouthful of rice; who had torn the gold bangles and ear-rings from their wives and children, and melted them into ingots, to deal in the maddening trade of Aripo. Some returned home rich beyond their expectations; some with little fortunes; but many went back ruined, beggared, and broken-hearted, to repay their loans or pledges; while some fled in terror to strange lands—having lost the means of replacing monies taken by them from sources of trust—being ruined in means and reputation. All this happens at every Pearl Fishery, and is not to be prevented, save by offering the fish in larger lots, which, though it might not prove quite so remunerative to the Government, would save much evil and suffering.

No further accidents from sharks happened whilst I was on the "Banks;" but in truth, at the end of the first week of the fishery, I was glad to avail myself of the opportunity of returning to Colombo in a Government boat. The novelty of the scene had worn off; one day's operations were precisely those of another. The scenes of drunken riot and dissipated phrenzy were daily becoming more violent and disgusting. Added to this, the intolerable stench from the accumulating myriads of oysters hastening to decomposition, rendered a residence on shore, within a mile or two of the *Cottoos*, quite intolerable to one who did not in any way partake of the excitement of the lottery in pearls.

The oysters are left in heaps for about thirty days, at the end of which time they become perfectly decomposed. In that state they are placed in a large canoe, and well but carefully washed with plenty of water, so as to remove the rotten portion of the fish, leaving the pearls and the shells in the water. Some of the more needy purchasers have not patience to await this process,

but at once proceed to work by opening the fresh oysters, and so learn their good fortune or their beggary. So eager are all to make money at these auctions, that the *Cottoos*, or bamboo enclosures and the washing-places, are all offered for sale at the expiration of the cleansing processes, and eagerly purchased by those who hope to discover in the sandy ground, some pearls which may have escaped the care of the former occupants. This they often succeed in doing.

Some conception may be formed of the immense masses of oysters which at these times lay putrifying on the burning sands of Aripo, when I mention that each boat will bring on shore, in one trip, from ten to twenty thousand of fish, making a daily total of from two to four millions for the whole fleet. The extremely hazardous results of these auctions may be gathered from the fact, that whilst in some instances as many as a hundred pearls of various weights and value are found in one oyster of large size, one hundred oysters may be opened without finding in them a single pearl.

The natives of India have a singular belief, with regard to the origin of pearls:* it is, that those beautiful concretions are congealed dew-drops, which Buddha, in certain months, showers upon the earth, and are caught by the oysters whilst floating on the waters to breathe. The priests—ever alive to their own interests—keep up the strange belief, and make it the pretext for exacting from the divers and boatmen of their faith what are termed "charity oysters," for the use of Buddha, who, when thus propitiated, according to their showing, will render the fish more rich in pearls in future seasons.

* The true explanation of the formation of pearls in the oyster is to be found in our first Volume, pp. 466-67.

Our Phantom Ship.

JAPAN.

WE may as well go by the North-west Passage as by any other, on our phantom voyage to Japan. Behring's Straits shall be the door by which we enter the Pacific Ocean. We are soon flitting between islands; from the American peninsula of Aliaska runs a chain of islands, the Aleutian,—which lie sprinkled upon our track, like a train of crumbs dropped by some Tom Thumb among the giants, who may aforetime have been led astray, not in the wood, but on the water. If he landed on Kamtchatka, from the point of that peninsula he made a fresh start, dropping more crumbs,—the Kurile Islands,—till he dropped some larger pieces, and a whole slice for the main land of Japan, before he again reached the continent and landed finally on the Gorea. In sailing by these islands, we have abundant reason to observe that they indicate main lines of volcanic action. From Behring's Strait, in fact, we enter the Pacific, between two great batteries of subterranean fire. Steering for Japan, we pass, on the Kamtchatkan coast, the loftiest volcano in the old world, Kamtchatskaja (fifteen thousand seven hundred and sixty-three feet). Following the course of the volcanic chain of Kurile Islands, of which the most northerly belong to Russia, the southern Kuriles are the first land we encounter subject to Japan. We do not go ashore here, to be sent to prison like Golownin, for we are content, at present, to remember that the natives of these islands are the hairiest among men. We sail on, too polite to outrage Japanese propriety by landing,

even from a Phantom Ship, on the main island; so we sail to Kiusiu, and run into the bay of Nagasaki. The isles of Japan, calling rocks islands, are in number three thousand eight hundred and fifty. The main island, Nippon, is larger than Ireland, and is important enough to have been justly called the England of the Pacific Ocean.

Only there is a mighty difference between this England, talking about liberty, or cherishing free trade, and that Dai Nippon; in which not a soul does as he pleases, and from which the commerce of the whole world is shut out. Dai (or great) Nippon is the name of the whole state, which the Chinese modify into Jihpun, and which we have further altered to Japan. On Kiusiu, a large southern island, Nagasaki is the only port into which, on any possible excuse, a foreign vessel is allowed to enter. This port we are now approaching; the dark rocks of the coast line are reflected from a brilliant sea; we pass a mountain island, cultivated to the very summit, terrace above terrace; green hills invite us to our haven, and blue mountains in the distance tempt us to an onward journey. There are white houses shining among cedars; there are pointed temple roofs; boats with their sails up make the water near us lively; surely we shall like Japan. We enter the bay now, and approach Nagasaki, between fruitful hills and temple groves, steeps clothed with evergreen oak, cedars and laurels; picturesque rocks, attacked by man, and wheedled out of practicable ground for corn and cabbages. There is Nagasaki on a hillside, regularly built, every house peeping from its little nest of greens; and there is the Dutch factory, named Dezima. Zima in Japanese means "island," for this factory is built upon an island. No Europeans but the Dutch; no Dutch except these managers of trade who are locked up in Dezima, may traffic with Japan;

and these may traffic to the extent only of two ships yearly, subject to all manner of restrictions. As for the resident Dutch, they are locked up in Dezima, which is an island made on purpose for them. As if three thousand eight hundred and fifty were not enough, another little island, fan-shaped, was built up out of the sea a few yards from the shore of Nagasaki. There the Dutchmen live; a bridge connects their island with the mainland, but a high gate and a guard of soldiers prevent all unseasonable rambles. In another part of the town there is a factory allowed to the Chinese. Other strangers entering this port are treated courteously, are supplied gratuitously with such necessaries as they want, but are on no account allowed to see the town, still less to penetrate into the country, and are required to be gone about their business as soon as possible. Strangers attempting entry at any other port belonging to Japan, are without ceremony fired upon as enemies. The admitted Dutch traders are rigorously searched; everything betraying Christianity is locked up; money and arms are removed, and hostages are taken. Every man undergoes personal scrutiny. The Dutch are allowed no money. The Japanese authorities manage all sales for them; pay the minutest items of expenditure, and charge it on the profits of their trade, which are then placed on the return vessel, not in money, but in goods. The Japanese deal justly, even generously, in their way; but it is their way to allow the foreigners no money power. They restrict their exports almost wholly to camphor and copper, and allow no native workmanship to go abroad. Yet among themselves, as between one island and another, commerce is encouraged to the utmost. The Japanese territories range in the temperate zone through a good many degrees, and include all shades of climate between that of Liverpool and that of Constantinople. Between island

and island, therefore, busy interchange takes place by means of junks, like these which now surround us in the Nagasaki harbour. You can observe how weak they look about the sterns, with rudders insecure. The law compels them to be so; for that is an acute device by which they are prevented from travelling too far: they dare not trust themselves too boldly to the mercy of the sea, and as it is, many wrecked men accuse the prudence of their lawgivers. But life is cheap; the population of Japan is probably near thirty millions,—and who should care for a few dozen mariners?

If you please we will now walk up into Nagasaki, with our phantom cloaks about us. Being in a region visited by earthquakes, of course we find the houses of one story, lightly built; they are built here of wood and clay with chopped straw,—coated over like our town suburban villas, with cement. Paper, instead of glass, for window panes, Venetian blinds, and around each house a verandah, we observe at once. But our attention is attracted from the houses to the people. How very awkardly they slip along! With so much energy and vigour in their faces, how is it that they never thought of putting reasonable shoes upon their feet? They wear instead of shoes mere soles of wood or matting, held to the foot each by a peg which runs between the great toe and its neighbour, through a hole made for that purpose in the sock. These clouts they put away on entering a house, as we should put away umbrellas, and wear only socks in-doors. Nevertheless the people here look handsome in their loose, wide gowns, bound by a girdle round the waist, with long sleeves, of which, by the bye, you may perceive that the dependent ends are Japanese coat-pockets. Thence you see yonder gentleman drawing his nose-paper,—one of the little squares of clean white paper always

ready in the sleeve-pocket to serve the purpose of our handkerchief. That little square when used is, you see, thrown away; but if the gentleman were in a house he would return it to his pocket, to be got rid of in a more convenient place. The women's robes are like those of the men in form, but richer in material, more various with gold and colour. As to the head equipment, we observe, however, a great difference between the sexes. The men shave their own heads, leaving hair only at the back part, and upon the temples, which they gather forward, and tie up into a tuft. The women keep their entire crop of hair standing, and they make the most of it; they spread it out into a turban, and stick through it not a few pieces of polished tortoiseshell, as big as office-rulers.* Inviting admiration, the young beauty of Japan paints her face red and white, and puts a purple stain upon her lips; but the remaining touches are forbidden to a damsel till her heart is lost. The swain who seeks to marry her, fixes outside her father's house a certain shrub; if this be taken in-doors by the family, his suit he knows to be accepted; and when next he gets a peep at his beloved, he watches with a palpitating heart the movement of her lips, to see whether her teeth be blackened; for by blackened teeth she manifests the reciprocal affection. Only after marriage, however, is the lady glorified with a permission not only to have black teeth, but also to pull out her eyebrows.

Those are not little beggars yonder trotting by that lady who is so magnificently dressed; they are her children. The children of the Japanese are all dressed meanly, upon moral grounds.

* Hats are not used by either sex except in rainy weather, but every Japanese carries a fan; even the beggar yonder holds his fan to that young lady, whereupon she drops her charitable gift.

Notice those gentlemen who bow to one another; the ends of a scarf worn by each of them exactly meet the ground, yet one bows lower than another, and they go on walking in the bowed position until each has lost the other from his sight. Those scarfs are regulated by the law; each man must bow so that his scarf shall touch the ground, and it is so made long or short, that he may humble himself more or less profoundly in exact accordance with his rank.

Of rank there are eight classes after the Mikado and the Ziogoon, whom we shall come to visit in our travels presently. There are, one, the princes; two, the nobles, who owe feudal service to the prince, or the empire; three, the priests; and four, the soldiers; these four form the higher orders, and enjoy the privilege of wearing two swords and petticoat trousers. Class five counts as respectable; inferior officials and doctors constitute this class, and wear one sword with the trousers. Merchants and respectable tradesmen form class six, whose legs may not pollute the trousers, though, by entering themselves as domestics to a man of rank, they may enjoy the privilege of carrying one sword. These are the only people by whom wealth can be accumulated. Class seven—artists, artisans, and petty shopkeepers. Class eight—day labourers and peasants. Tradesmen who work on leather, tanners, &c., are excluded from classification. They are defiled, and may not even live with other men; they live in villages of their own, so thoroughly unrecognised, that Japanese authority, in measuring the miles along a road, breaks off at the entrance of a currier's village, leaving it excluded from his measurement, which is resumed upon the other side. So, if we travel post, we get through leather-sellers' villages for nothing.

These houses in Nagasaki, which at a distance looked so much

like mansions, are the store-rooms wherein tradesmen keep their valuable stock, and families their valuable furniture. For desolating fires are common in the towns and cities of Japan; so common that almost every house is prudently provided with a fire-proof store-room, having copper shutters to the windows, and the walls covered a foot thick with clay. Attached to each is a large vessel of liquid mud, with which the whole building is smeared on an alarm of fire; and this method of fire-insurance is exceedingly effective, where there is nothing like a Sun or Atlas Company to fall upon, and the most abstemious of fires eats up, at any rate, a street.

That door is open, and there is no horse-shoe over it—there's not an iron horse-shoe in Japan,—so two ghosts slip into the house unperceived. First, here is a portico for palanquins, shoes, and umbrellas; into this the kitchens open. In the back apartments we shall find the family. We walk into the drawing-room, and there the master sits. It is most fortunate that we are now invisible; for, did we visit in the flesh, we should be teased by the necessities of Japanese civility. That gentleman would sit upon his heels before us; we should sit on our heels before him; we should then all bow our heads as low as possible. Then we should make compliments to one another, the answer to each being, "*He, he, he!*" Then pipes and tea would be brought in; after this we might begin to talk. Before we left we should receive sweetmeats on a sheet of white paper, in which it would be our duty to fold up whatever we did not eat, and put it in our pockets. Eat what you like, and pocket what remains, is Japanese good-breeding. At a dinner party the servant of each guest brings baskets, that he may take away his master's portion of the feast. This master, however, is unconscious of our sha-

dowy appearance, and continues busy with his book. It is Laplace, translated into Japanese, through Dutch. The Japanese are thoroughly alive to the advanced state of European science, and on those fixed occasions when the Dutchmen from the factory visit the capital, the Dutch physician is invariably visited by the native physicians, naturalists, and astronomers, who display on their own parts wonderful acumen, and most dexterously pump for European knowledge. Scientific books in the Dutch language they translate and publish into Japanese. The country has not been shut up out of contempt for foreigners, and native men of science have so diligently profited by opportunities afforded from without, that they construct by their own artificers, barometers, telescopes, make their own almanacks, and calculate their own eclipses. Hovering about this gentleman, our eyes detect at once that the impression on his page is taken from a wood-cut imitation of hand-writing; moveable types are not yet introduced into Japan. The writing, like Chinese, is up and down the page, and not across it. Three or four different characters seem to be used indiscriminately, and some of them are certainly Chinese. The good folks of Dai Nippon are indebted to the Chinese for the first strong impulse to their civilisation; not being themselves of Chinese origin, but a distinct branch of the Mongolian family. Their language is quite different, and has exceedingly long words, instead of being built up, like Chinese, of monosyllables. Japanese written in Chinese character is understood by any Chinaman; but so would English be, since Chinese writing represents ideas. So, if a Spaniard writes five, an Englishman reads it as "five," and understands correctly, yet the Spaniard would tell you that he wrote not "five," but "cinco."

Hovering still about this gentleman, and beguiled, by the

strangeness of all things we see, into a curiosity like that of chil dren, we admire his sword. The hilt is very beautiful, composed of various metals blended into a fine enamel. This enamel is used in Japan where Europeans would use jewels, because the art of cutting precious stones is not known to the Japanese. For the blade of this sword it is not impossible that a sum has been given not unlike a hundred pounds; the tempering of steel is carried to perfection in Japan, where gentlemen are connoisseurs in sword-blades. Young nobles lend their maiden swords to the executioner (who is always chosen from the defiled leather-selling race) that they may be tried upon real flesh and blood; as executions in Japan are generally cruel, and some criminals are hacked to death, rather than killed outright, the swords on such occasions are refreshed with a fair taste of blood. The mats upon the floor are the next things we notice; a thick matting of straw forms a substratum, over which are spread the fine mats, elegantly fringed. To see that lackered work inlaid with mother-of-pearl, which we familiarly call Japan, in its perfection, we must evidently visit it at home. Anything of the kind so exquisitely beautiful as this little table, is not to be found in Europe. Whatever trinkets pass out of these islands into Europe, do so *nayboen*,—that is, with secret connivance,—but the first-rate manufactures are in no way suffered to come to us. Without *nayboen*, life would be insupportable in a minute wilderness of rules and customs. People even die *nayboen;* that is, a man lies unburied, and is said to be alive, when his death otherwise would lead to disagreeable results. Here, as elsewhere, when rules are made intolerably strict, evasion is habitual. The amount that cannot be evaded is astonishing enough, as we shall see ere we return to England; now we are in the house of this

gentleman at Nagasaki. His wife enters, and by their mutual behaviour, it is evident that ladies in Japan are to their husbands very much what ladies are in England. This lady passes to the garden; the room ends with a projecting angle open to the garden on each side, a sort of bay, which every house has; and if there be no more ground than just the supplementary triangles on each side to complete the square, still there is always that; and that is always quite enough, for want of more. It is enough to spend a fortune upon, in dwarf trees and vegetable curiosities. The Japanese shine like the Chinese in monstrosities. They can dwarf trees so well, that in a little box four inches square, President Meylan saw growing, a fir, a bamboo, and a plum-tree, in full blossom. Or they hypertrophy plants if they please, until a radish is produced as large as a boy six years old. Their gardens, however small, are always laid out in landscape style, and each is adorned with a temple, not a mere ornamental summer-house, but the real shrine of a household god. Into this garden walks the lady, and returns with a few flowers. She takes these to an elegant shelf fixed in a recess of the apartment, upon which a bouquet stands, and is engaged upon her nosegay. An act of taste? O dear, no; every drawing-room in Japan has such a shelf with flowers placed upon it; every lady entering who found her husband there, and meant to talk with him, would in the first place make the nosegay talk, and say, "The wife and husband are alone together." If company arrive, the flowers must be otherwise adjusted; the position of every flower, and even of green leaves, in that bouquet, is fixed by custom, which is law, to vary with the use to which the room is put. One of the most difficult and necessary parts of female education in Japan, is to acquire a perfect knowledge of the rules laid down in a large

book on the arrangement of the drawing-room nosegay, in a manner suitable to every case. It is the Japanese "Use of the globes" to ladies' schools. To boys and girls, after reading and writing, which are taught (hear, England!) to the meanest Japanese, the most necessary part of education is an elaborate training in the ceremonial rules of life. Bows proper for every occasion, elegant kotoos, the whole science and practice of good-breeding, have to be learned through many tedious years. To boys there is given special training in the harakiri, or the art of ripping one's self up. Many occasions present themselves on which it as much concerns the honour of a Japanese to cut himself open, as it concerned an Englishman some years ago to fire a pistol at his friend. The occasions are so frequent, that a Japanese boys' school would be incomplete in which instruction was not given in this art of suicide. Boys practise all the details in dramatic fashion, and in after life, if a day come when disgrace, caused often by the deeds of other men, appear inevitable, he appoints a day, and according to the exigencies of the case, before his family or his assembled connections, ceremoniously cuts open his own belly at a solemn dinner. Dying in this way, he is said to have died in the course of nature; dying before shame came to him, he is said to have died undisgraced, and so has saved his family from that participation in his fall, which otherwise was imminent. Now we must leave this house, in which we have spent perhaps a little too much time: yet in the whole time we did not once hear the squalling of a baby, though a baby was there certainly. If this should meet the eye of Mr. Meek, he is informed that in Japan, children, until they are three years old, are not allowed to wear anything tight about their persons.

Now we are once more in the streets of Nagasaki, and observe,

that for a gentleman to turn his back upon a friend, is true politeness, in this most original of lands. It signifies that he who so turns is unworthy to behold the face, &c. A bridal procession passes us; the bride in her long white veil. There is a touch of poetry connected with that veil; it literally is the shroud in which she will be buried.

We are out of town now, and delighting in the open country. Exquisite views of hill, and dale, and wood, and water, tempt the sight. Rice fields, of course, we pass; rice is a staple article of diet to the Japanese, as to so many other millions of the human race. It is the vegetable food that finds its way into more mouths than any other. There is wheat, also, in Japan, used chiefly for making cakes and soy; barley for feeding cattle. The cattle being used as beasts of draught and burden, it is thought improper to kill them, or to deprive the young calves of their milk; the Japanese, therefore, refrain from milk and beef. They eat great quantities of fish, poultry, and venison. In the country gardens we see quinces, pears, plumbs, cherries, peaches, oranges, and citrons too; bean-fields abound, and farms, of which the hedges are all tea. Where soil and climate favour, many a hill-side, in Japan, is cultivated as a tea plantation; but beyond this, the tea plant is used by the farmers generally as a hedge, from which they gather their own leaves, and dry tea for home use, just as our farmers brew their own October beer. Now we are flitting under cedar groves, now under firs, now under mulberry plantations for the silk-worm; every good point in the landscape is occupied by a temple, which is composed of one large edifice and many little ones; the little ones are used by pleasure parties. There is a snake, and there you see in the tree a long-tailed monkey (*Inuus speciosus*); there is no other kind of monkey in

these islands, and the snakes are all of species found nowhere else. The tree frog and the eatable frog live in the north of Nippon. Here we have squirrels. There are no lions and tigers; there is not a single animal of the cat tribe known upon these islands; you can meet with nothing worse than a wild boar. Great pains are taken to destroy the foxes. Here are pheasants without game-laws, and the peacock yonder looks as if he felt himself at home. Several palanquins have passed us on the road, varying much in shape and minor details. The shape of the palanquin, the length of the poles, their position, the way in which they are held, and the number of holders, are all fixed so as to accord precisely with the rank of the good gentleman inside. The number of attendants in the train, even of an inconsiderable man, is startling; and as for a prince, he might be setting out to conquer China. The roads are good, and there is no lack of horsemen, but we have not seen draught carriages; perhaps these hills are an impediment to travelling by such conveyance; roads over hills and mountains being simply flights of steps.

Hollo! What couple scampers by in such a hurry? 'Tis the post; the greatest princes must put by their etiquette, and get out of its way. One man runs with the letters, and another keeps pace with him to supply his place in case of illness or accident; if both posts fail, the nearest man, whatever be his dignity, must do their work for them. These posts are never horsed; but each pair, at the conclusion of a stage, finds the next couple waiting to catch the important bundle thrown to them, and set off instantly, before the spent runners have reached the spot where they may halt and get their wind again. Goods are conveyed on pack-horses or oxen over land; but water transit by lakes, rivers, or canals, is much more common. The roads are well swept, for the

farmers on each side diligently scrape up all manure: and as men with brooms clear the way before a traveller of rank, the highway is kept in a very neat condition. Men selling straw clouts for travellers, and straw shoes for the horses, which require, of course, frequent renewal, pick up a living by the roadside, and we pass them frequently. Observe that mighty camphor-tree, which every traveller has mentioned. To Kæmpfer it was venerable for its age in the year 1691: still it is healthy, and so large that fifteen men can stand within its hollow. Hot springs, of course, we pass in a volcanic country. There is a coal-mine also here, though charcoal is the fuel usually burned.

We have now crossed Kiusiu, and reached the seaport of Kokura, where we find our Phantom Ship in readiness to take us through a sea covered with islets, to the large island of Nippon. We shall disembark, and travel very rapidly through Ohosaka to Miyako, where the divine Mikado holds his court. We pass some strange-looking men covered with matting, each of whom has in his hand a long wooden spoon. The spoon is their cockle-shell, for they are pilgrims travelling in the most pious form, as beggars, to the shrine of their own goddess. This pilgrimage is made by all good Japanese—the oftener the better, especially as they grow old, because they get each time full absolution from the priests for their past sins.

The sun goddess and the Mikado are allied together; and as we now are journeying towards a seat of government, we can do nothing better than discuss the Japanese religion. It begins with an Oriental "once upon a time," of gods who reigned for a few millions of years apiece, above whom there was, and is, and ever will be, one supreme God, free from care. The last of seven royal gods said to his wife one day, "There's earth some-

where, I'm sure!" and so he poked about with his spear in the water, feeling for it. Drops falling from his spear-point made the islands of Japan. Then this god made eight millions of other gods, and also created the ten thousand things. Having ordered matters to his satisfaction, he made a present of his Japanese earth to his pet daughter, the sun goddess. The sun goddess reigned only two hundred and fifty thousand years, and her four successors filled the next two million; the last of the four, being the great-great-grandson of the sun goddess, fancied a mortal life, and left a mortal boy, who reigned on earth, and was the first Mikado; from him all Mikados are descended. This is the native Japanese religion, called Sintoo; worshipping the sun goddess, and *Kami*, which are minor gods, or saints. The Sintoos bow before no images, but put as emblems in their temples a sheet of white paper and a mirror, to denote the soul pure and incapable of stain. The worshipper kneels, gazes at the mirror, offers sacrifice of fruit or rice, deposits money, and retires. Upon this creed Buddhism has been grafted; but the religion of the learned Japanese is Sintoo—a philosophic moral doctrine which they cherish secretly, while outwardly observing rites prescribed by custom.

But *revenons à nos Mikados:* the first Mikado, though of fabulous descent, is an historical person, Zin-mu-ten-woo, and with him Japanese history begins—at a period from whence we date rational annals in some other countries, about 660 B. C. We will note those points of history that are essential to a comprehension of the present government. Mikados followed each other, sole rulers, and powerful, until they fell into a trick of abdicating in favour of their children, and then doing the duty without being annoyed by the ceremonies of their office. That had its inconvenient results, for presently came one Mikado who

married the daughter of a powerful papa; and when the time came for retirement, and he had abdicated in favour of a son three years old, the powerful papa thrust him aside into a prison, and usurped the regency. A civil war was the result of this; Yoritomo leaped up as champion of the imprisoned man, so recently a king, released him, and restored him to the regency over his infant son. For this essential service good Yoritomo was made a sort of field-marshal, or Ziogoon. The ex-Mikado dying, left Yoritomo the guardian of his son; and so for twenty years the Ziogoon was regent. Infant Mikados still continuing to be the fashion, regency became hereditary to the Ziogoons; and these last being men, it eventually came to pass that the Mikado was stripped of all power, and converted into a magnificent doll, while the real court was transferred to Jeddo, where the Ziogoons reside. Retributive justice we shall meet with in a little while, but we have now reached Miyako, the Mikado's residence, and nominally still the capital of Nippon.

Poor Mikado, what a miserable honour he must think it is to be divine! He represents the sun goddess on earth, and is required to sit upon his throne quite still, and without moving his head for several hours every day, lest the whole earth should be unsteady. When not sitting, he must leave his crown upon the throne to keep watch in his absence. Being so very holy, he is deprived of all use of his legs; earth is not worthy of his tread. His nails and hair are never cut—for who may mutilate a god? Every article of dress that he puts on must be bran new; his plates, and cups, and dishes, everything he touches at a meal—even the kitchen utensils used in cooking for him—must not be used twice, and of course no profane man may employ what has been sanctified by the Mikado's use. Whatever clothes he puts

off are immediately burned; his pots and vessels are destroyed. This hourly waste being a heavy pull on the finances of the Ziogoon, the divine victim gets only the coarsest slops to dress in, and eats off the cheapest crockery. No wonder that he still keeps up the fashion of resigning. His palace is circumscribed with palisades, and an officer residing without the gate spies all his actions, and reports them to the Ziogoon. Still the poor fellow is divine. The gods, it is believed, all spend a month at his place, during which month they are not at home in their own temples, and worship is accordingly suspended. The Mikado grants religious titles, fixes feasts and fasts, and settles doctrinal disputes. Thus there arose once schism in Japan about the colour of the devil. Four factions respectively declared him to be black, white, red, and green. The theologic knot was given to the Mikado that day to unravel, who, knowing the obstinacy of theologians well, declared all parties to be right; and so the devil of Japan remains to this day a four-coloured monster. Offices of state in the Mikado's court—the Dairi it is called—are above all in honour, objects of ambition even to the Ziogoon. The dwellers in the Dairi with the holy prisoner, both male and female, are the most refined and cultivated Japanese. From their ranks are supplied the poets of the land, who sing the beauties of the rapid Oyewaga, or legends of the snow-capped Foesi.

Miyako is the classic ground, the Athens, of Japan. But we must go on to the Japanese London, Jeddo, the real capital, a grand metropolis, with about one million, six hundred thousand inhabitants. Of course there is a wilderness of suburb; there are endless streets; there is a river through the town which flows into the bay, from which this capital is not far distant. There are bridges; there is a vast multitude of people thronging to and

fro; there are shops, signs, inscriptions. We will walk into a theatre; for here, as in the days of Æschylus, performances take place by day. There is a pit, and there are tiers of elegant seats, which answer to our boxes; the scenery and dresses are handsome, only in scene-painting there is no perspective. As in the early European drama, the subjects illustrated are the deeds of gods and heros: not more than two speakers occupy the scene at once; boys act the female characters. Several pieces are performed, each piece divided into acts, and the plan is to give after Act I. of the first play, Act I. of the second, and then to begin the third, before taking the series of second acts. As each actor in each piece plays also several parts, one might consider this arrangement to be rather puzzling. Gentlemen go out after the act of any piece they wish to hear, and attend to other matters till the next act of the same piece shall come on; but ladies sit with pleasure through the whole. Dear souls! they steal a march upon our feminine box ornaments; for they bring with them a collection of dresses to the play, slip out during each pause to change their clothes, and reappear, to catch the admiration of beholders, every time in a new costume.

The palace of the Ziogoon covers much ground, being in fact a rural scene—a palace and a park, locked up within the town. As for the Ziogoon, he also is locked up within his trenches. To understand how he is fettered, and, at the same time, how all the people of Japan have come to be locked up, we must pursue our little thread of history. Yoritomo established, as we said, the power of the Ziogoons, which flourished for a long time. Kublah Khan endeavoured to make Nippon subject to him; but without success, winds and waves fighting with the Japanese. Mongolians were forbidden then to touch Japanese ground, but a

century later friendly relations were restored with China. In 1543, two Portuguese, Antonia Mota and Francesco Zeimoto, landed in Japan, exciting great interest among a mercantile people, trading at that time, it is said, with sixteen foreign nations. The Portuguese taught new arts, they brought new wares, and they were welcomed eagerly; some of them settled, and were married in Japan. The Jesuits came, too, with Christianity, and their preaching was abundantly successful. Now, it so happened, that about the same time, when the Portuguese first arrived, a civil war was waged between two brothers, for the dignity of Ziogoon. Both brothers perished in this war, and then the vassal princes fought over the fallen bone. Nobunaga, the most powerful of these, was aided by a person of obscure birth, named Hide-yosi. Nobunaga became Ziogoon, favoured the Christians, and invested Hide-yosi with high military rank. An usurper murdered Nobunaga, was then himself murdered, and left vacant a seat which Hide-yosi was now strong enough to seize. He took the name of Tayko, and is the great hero of the annals of Japan. He it was who continued the robbery of the Mikado's power, and secured himself against revolt by establishing a system of check over the princes, which prevails to this day. He left a son bearing the name of Hide-yosi, six years old, and to secure his power, married him to the daughter of Jyeyas, a strong papa. Jyeyas played the usurper, of course, and a large faction supported the young Hide-yosi, whom he had sworn to guard. The boy was Christian at heart; his cause, also, was just; the Jesuits, therefore, and the great body of the Christians, warmly took his part. Had he maintained his right successfully, Christianity would have become the state religion in Japan. Jyeyas conquered, and the Christians, persecuted, afterwards re-

belling, they were rooted out—regarded as a sect politically hostile. Their rebellion broke loose in the principality of Arima; the Prince of Arima drove the insurgents, seventy thousand in number, to the peninsula of Simabara, where they stood at bay. Since they were not to be dislodged, the Dutch, then settled at Firato, were desired to aid the government; accordingly they sent a man-of-war, which fired upon the Christians and sealed their fate. To this service the Dutch were indebted for their permission to retain one factory. All other Christians were destroyed or expelled, and since those days every stranger has been required, exempting the Dutch factory, to trample on an image of the Saviour, as an evidence of his not being a Christian interloper.

To finish our history, we must record that Jyeyas, having established his own usurpation, completed the reduction of the Mikado to a state of helplessness; completed the fettering of the princes, and the protective system of espial; and being deified, on death, under the name of Gongen, was the founder of the Gongen dynasty of Ziogoons, which still rules in Japan, and still adheres to the protective system. But in course of time the power of the Ziogoons has waned: the Ziogoon himself is now a puppet to his council, which is governed by a president, who by no means is able to do what he likes.

Let us now see how all the Japanese are tied and bound, and kept in profound peace. In the first place, nearly half the population are officials in pay, and the whole empire is sprinkled thickly with spies, some public and official, who may intrude where they please, others concealed and not acknowledged, although paid, by government. Furthermore, every householder is required to watch the actions of his five intermediate neighbours, and to keep

a sharp eye upon movements opposite. Every prince is assisted in his government by two secretaries, whom the court appoints, one to reside with him, and the other to reside at Jeddo. These take every act of government out of his hands. The secretary, who lives with him, watches him, and acts upon instructions from the secretary who resides at Jeddo, who again is prompted by the council. Not only does the prince live surrounded by a mob of unknown spies, but he is obliged, every alternate year, to leave his principality and to reside at Jeddo; his wife and family are always kept at Jeddo in the character of hostages. Furthermore, pains are taken to prevent a prince from being rich. He is required at Jeddo to impoverish himself by displays of pomp; and if his purse be long, the Ziogoon invites himself to dinner with him; an honour great enough to ruin any noble in Japan. Similar checks are upon all governors of towns and all officials. Any neglect reported by a spy, any infraction of a rule, threatens disgrace, and makes it necessary to perform the act of suicide before described. So it was not without cause that they were taught at school the hara-kiri. Perhaps you think the council is omnipotent. Far from it. The council may, indeed, make any law, which will be submitted by the president for sanction to the Ziogoon. Then, should the Ziogoon refuse his signature, and differ in opinion from the council, if he blame the law, the question is submitted to the Ziogoon's three next of kin, and they are umpires. If these decide against the Ziogoon, he is deposed immediately; if they decide againt the council, then its president and members must rip themselves up.

Yet still this tyranny of custom, which would seem to be so burdensome to all, goes on, because all are so bound that none can begin to stir. The Japanese, as we have partly been able

to see, are an acute race—they have original and thinking minds; with a dash of Asiatic fierceness, they are generous, joyous, sympathetic. They love picnic parties and music, with a buffoon; who first encourages them to throw off restraint, to laugh and riot in good-nature; and, assuming then his second office, draws himself up demurely, to give all a lesson in politeness. The buffoons who go for hire to promote mirth with a pleasure-party, go also as masters of the ceremonies. The treatment of Golownin, as a prisoner, will also illustrate the nature of the Japanese. In moving from one prison to another, he walked, bound so tightly with thin cords that they cut wounds into his flesh. These wounds the soldiers dressed every evening, but did not slacken any string; they said that he was fettered in the customary way. Yet these men willingly would take him on their backs, to carry him, when he was foot-sore; people in the villages were gladly suffered to show sympathy by feeding him with pleasant things as he passed through; and when he had made efforts to escape, which, if successful, would have entailed hara-kiri on his guards, they still showed no abatement of good-nature.

Under the main bridge of Jeddo lies our Phantom Ship, and from the heart of that great city of the East we float out to the sea. It does not take us long to get to Tower Stairs;—and now a Phantom Cab will take you home.

Short Trip into Bosnia.

BOSNIA has, for a long time, been the most unsettled part of the Turkish Empire. Inhabited as it is by a majority of Greek Christian serfs, and a minority of the most arrogant and violent Moslemin, the war of oppression has been carried on ever since the former was called into a disputed political existence, by the decrees of the late reforming Sultans. Since that time, the immunities granted to the Rajahs were contested by the Turkish gentry, and petty insurrections of the Rajahs against their oppressors, or of the Moslemin chiefs against the Sultan's authority, have unceasingly disturbed the peace of the East, and courted the interference of meddling neighbours. The disaffection and confusion of conflicting interests in the Bosna Vilajet, has become proverbial amongst the Turks. It has defied the cunning of their diplomatists and the courage of their generals. The last Vizirs, in particular, were mere tools in the hands of the reactionary Bosnian aristocracy; but when it was found that the Porte insisted on extending its liberal reforms to the Bosnian Rajahs, the chiefs of the province rose in arms, by the connivance, and all but the protection, of the Sultan's lieutenant. Ali Redir, a Bosnian landholder, is the most active and talented among the insurgents; and, thanks for his intrigues, the cities, and among them Pridor and Banjaluka, declared for the insurrection. Attacked by the Sultan's general, Omer Pasha, the Bosnian chief has suffered severe defeats; and there is a likelihood of his being put *hors de combat* for a time, but they have been temporary. Other chiefs

have started up, and at the time we write, the insurgents are again in arms. It is about the commencement of the struggle that our trip took place.

The night was dark, and not too calm. Staniza, an old, unbaptised, obstinate Servian, who had brought me to the very borders of the Turkish frontier, sat with me by the fire, while Richard, my friend and travelling companion, slept on a bed of straw by our side. The storm, which shook the light Servian cottage in which we sat, blew into Bosnia; it was but natural that our conversation should follow it. My curiosity was great, and so was Staniza's desire to recount the wonders of the country "on the other side;" and while I questioned him, and while he talked, he smoked his pipe with that concentrated gravity which marks a true believer; he said, at length, "Would you like to go across?"

"I should; but I have no money."

"True! Your Swabian* bits of paper—your *notes*—are of no use when you leave these territories."

"How can I then go to Sarajewo?"

"Have you not a friend on the other side?"

"Ahmed Beg?"

"Yes; that's the man! He will lend you *silver*. I will find you in horses and food."

When Richard awoke, I recounted our project; and after some persuasion he consented to accompany us. Staniza brought three horses, and various good-sized packages. We mounted, and set off in high spirits, although without passports or money.

A short ride brought us to Ahmed Beg's village, where we were received by a large party of dogs, which escorted us, yelling

* In Servia and Bosnia everything Austrian is known as *Swabian*.

and barking, to my friend's house. Some boys, who were playing at the door, raised a shout which effectually scared the dogs; but they, in their turn, surrounded us, yelling, and laughing, and expressing by unmistakeable signs, their astonishment and disgust at the spectacles which adorned my face. Staniza collared one of the shrieking imps, and asked for Ahmed Beg.

"He is gone to Bijelastjena," said the boy, sullenly.

This was bad news; for we looked to Ahmed Beg for everything we wanted; for protection, advice, and money. Staniza, however, seemed by no means inclined to sympathise with our despondency. "When did Ahmed go?" said he.

"Yesterday."

"And when will he come back?"

"This evening."

"I thought as much" said Staniza; "for Bijelastjena is hardly more than half a day's ride from this place."

We dismounted, and introduced our horses into Ahmed Beg's Konak, or house, where we found half-a-dozen men and women servants and others, walking and sitting about. None of them spoke to us. They neither welcomed us, nor did they condescend to ask where we came from, and on what business? At length the urchin to whom we had spoken before made his appearance, and told us to tie the horses to a post, and take a seat in Ahmed Beg's parlour. He led the way into a dark apartment, lighted the fire on the hearth-stone, and a torch of firewood in the centre of the room; and having performed these domestic functions, he retired, silent as a dumb-waiter.

We were now at leisure to examine the place. The room was clean and airy. It had an old discoloured piece of carpet by way of hearth-rug, and a heap of clean straw and blankets in a corner

A small cask of exquisite tobacco, and a choice collection of chibuks, or pipes, completed the list of the rest of the furniture.

"This air of Bosnia," said I, "has Turkified us. Here we sit staring and moping, and why? We are not prisoners, surely, and if it so pleases us, we can go back."

"I say, Swaby," said Staniza, "methinks thou art afraid."

"Afraid!" cried Richard, to whom this soft impeachment was applied, "what is there to be afraid of?"

"Never mind, *dragi*, (my dear), I know you. You are bold-spoken, but—"

"The Swabçad is not a nation of cowards," said I to Staniza, "and my friend is less afraid than disgusted. The Swabe travel with great comfort, and—"

"I know all about it, Doctor. They have coaches and plenty of money."

"Just so. Now we have no coaches and no money." Staniza nodded. In another moment Ahmed Beg entered with a hearty *Selamun aleikümün.* His presence changed the aspect of the place. Coffee was brought in. We sat and smoked the most precious tobacco, and drank solid hot mokka from the smallest cups imaginable. While we smoked and drank, we were grave, thoughtful, and silent, in the true Oriental fashion.

At length I spoke. I informed Ahmed Beg of our intentions, and asked him for funds. He said neither yes nor no; but told us of his journey to Bijelastjena, where he had transacted some business with the Kadija.

Early in the morning Ahmed Beg stepped up to us, and, with a kind nod, he handed me a large bag.

"Here," he said, "is your money. It's the whole of a

Kesa,* and here is a Teskera,† if you should stand in need of it."

I gave him my best thanks, and asked when he would require me to return the money.

"If it were mine own," replied Ahmed Beg, "I would say, give it back when most convenient. But I have just borrowed it from my neighbour, Sefir-Aga, and he will want it in autumn."

I held out my hand. He took it, and the affair was concluded in the true Turkish manner, without bond, or indeed a single scratch of the pen.

We had breakfast, and a deal of information and advice. Thus prepared for the journey, we took leave of our host, and with a large crowd of little Turks yelling and shouting at our heels, we proceeded in the direction of Jasenica.

We passed over a forest-covered plain, broken here and there by fine meadows, and fields of maize. Hares and rabbits crossed our road; the bushes were alive. The air was so pure, and the greenwood so fresh, melodious, and merry, that, recollecting the nursery tales of Turks and Pagans, and their doings, I could not, for the life of me, believe that we were really and truly on Turkish ground. Besides, we saw no human biped who might have recalled me to a sense of my situation. After a hard ride of six hours, we crossed the Irna, a small river, but full of falls and rapids; on the opposite bank we dismounted, and turned the horses away to graze in the forest. A gigantic oak was selected as the most convenient place for our bivouack, and Staniza produced our provisions from the gaudy-coloured Bisago. A capital

* Purse. † Passport.

caterer he proved himself to be, this unchristened Staniza. There was a ham, a lamb roasted whole, a large cake, and a *cutura* filled with black Dalmatian wine. A six hours' ride over Turkish plains and through forests, and the fresh, racy spring air, is the very thing to prepare one for such a repast. We enjoyed our pic-nic amazingly. We ate, and joked, and drank, until, suddenly turning round, I remarked a Turk squatted down at my elbow. I stared at the new comer, who scarcely returned the compliment. He smoked his pipe with exemplary gravity; until, noticing the remains of our dinner, he dropped his chibuk, drew his knife, and coolly helped himself to a slice of roast lamb.

"Do you like it, komiga?"—that is to say, neighbour—said I.

"Your bread is good."

"Take another piece, then."

He took another piece, and another; and, having finished his repast, he said "Horala!"—thanks!

There was a lengthened pause. Question and answer is, indeed, essential in Turkish conversational etiquette.

"Whither are you going?" said our new friend, at length.

"To Jasenica."

"Hm!"

There was another long pause.

"You cannot reach it this day. It is late now, and there is no moonlight."

"Hm! This is bad."

"Hm!"

Another pause.

"Have you met men who were journeying towards Krupa?"

"No!"

"Hm!"

In this instance there was a remarkably long pause.

"Ele Jusuf!" said Staniza at last, "methinks *you* are going to Krupa!"

"No, Stara lisice" (old fox), replied Jusuf, "for once you are in the wrong. I saw you, and came down from my Konak."

Staniza laughed.

"You honour us much!" said he. "I did not think you would stir for our sakes."

Jusuf smiled.

"Listen, old giour!" said he, "wilt thou swear on thy book to give an honest answer to an honest question?"

"Boga mi!—my answer shall be as honest as thy question."

"Elvala!" said the Turk. "Tell me, from whence did you come this day?"

"From Jarak."

"Hm!—Did you see Ahmed Beg?"

"We slept in his house."

"Hm!"

"Did he give you orders for the Capitan of Jasenica?"

"No!"

"Did he give you a Teskera?"

This question was uttered with peculiar emphasis, and accompanied by a very searching glance.

"He did," said Staniza. "Shall I show thee the Teskera?"

"Hm! No! Ahmed Beg is of our party. Why should I see it?"

"Show it him!" said Staniza, and I produced the paper, with its crabbed Turkish characters.

"It is well!" said the Turk. "I will go with you to Jasenica; I can confide in you."

"Where is thy horse!"

"It is at home. Your way lies past my Konak."

Saying which he rose and disappeared in the forest.

"He has confidence in us," said I, "but I am not quite sure whether we can return him the compliment."

"Sveta ti Vjera, covjece!" replied Staniza. "Why should not one man be trusted by three? Think you a Turk has two tongues in one mouth like a Swaba! Are we not armed? Whom *I* trust, you may surely confide in. Saddle your horses and let us be gone!"

We proceeded on our road, and were soon afterwards overtaken by Jusuf. Staniza and Richard led the way, and I followed with Jusuf, partly for the purpose of watching him, and partly because my horse, on which Staniza had been pleased to pack all our luggage, seemed almost unequal to the double burden. Neither of the party spoke for some hours. All of a sudden—bang! went the report of a musket, and close to my side too. Staniza taking a pistol from his belt, turned upon the Turk; who, as I now saw, had dismounted, and discharged his piece at an enormous eagle, which sat on a tree by the road-side. He had evidently hit it, for the feathers were flying about. Seeing this, Staniza fired at the bird, which came down with a plaintive cry, flapping the ground with its enormous wings in so furious a manner, that Staniza and Jusuf thought it proper to keep at a respectful distance. But Richard, a keen sportsman, intended evidently to deal with the eagle as he would have done with a partridge, or black cock. He stooped to take it up, but the very next moment he measured his length on the ground. The eagle had hit him in the face.

"Ludi Kriste!" (Stupid christian!) said Jusuf to my discom-

fited friend. "I was not afraid; and now thou knowest why I stood aloof from the bird."

The wounded eagle had meanwhile breathed its last. Jusuf and Staniza plucked the largest feathers, and fastened them to their bridles.

"Do you know, Ture," said Staniza, "whom I thought of shooting with my pistol?"

"I saw it," said the Turk.

"The eagle's feathers which flew about my face, saved you. Had it not been for them, even your Prophet would not have saved your life."

The Turk was silent.

"Didst thou mistake it for a signal?" said he, after a while.

"I did."

"Ludi Kucko," said Jusuf with great scorn. "Dost think me a Christian?"

"Never mind, Ture, don't I know you?"

And we moved on, until the darkness of the night, and the dense impenetrable underwood in our way, convinced us of the uselessness of our effort to reach Jasenica in the course of that night. So we stopped and looked out for a resting-place in the forest.

Staniza secured the horses, and Jusuf lighted a fire, round which we squatted, smoking and despatching the remains of our dinner. The evening passed very much as an evening in the woods may be expected to pass, whether it be in Pagan countries or in Christendom, and as the night grew dark and the fire burned with a low and flickering flame, the chibuks dropped from their mouths, and leaning our heads in our knees, we were fast in meditation—or sleep.

The neighing of our horses roused us. I took my pistols, and Richard, with all the head-strongness of somnolency, insisted on being told what was the matter! Staniza, too, got up.

"I hear the sound of hoofs!" said he.

"Be quiet! They will be down upon us in a minute."

He was right. Almost immediately afterwards we were surrounded by a troop of armed horsemen.

"What are you doing here?" said a young Turk, in the Padisha's coat.

"We are on our road to Jasenica," replied Jusuf dogmatically, "and it is here we pass the night."

At this juncture another Turk joined the conversation.

"Ah!" said he, "this is Staniza, the old fox. Tell us, why didst thou creep from thy cave?"

"Did you not hear it?" said Staniza. "We are going to Jasenica. It's nothing to *you*, I hope."

"And who are these fellows?" said the young soldier, with a significant look at Richard and myself.

"They are men, just the same as you and I," replied Staniza.

"Take care, old fellow! I will make you howl for your impertinence."

"You threaten because you fear!"

Saying which, Staniza grasped the handle of his handjar.

Some of the new comers had, meanwhile, dismounted. They interfered.

"Leave him alone, Mehmed," said they. "We know old Staniza; he is one of ours."

Their conciliatory efforts produced a temporary suspension of hostilities. A fresh supply of dry wood was thrown on the fire, and the Turks squatted round it. The chibuks were lighted.

"What is your business in Jasenica?" asked one of the horsemen after a long pause.

"We are going to Sarajevo."

"Hm! Have you a Teskera?"

"Most certainly."

"Show it."

The paper was produced, and carefully examined by the young officer, who did not, however, appear much edified by its contents. At length he said:—

"This will not help you on. It is not from the Porte, it is the Teskera of the insurgents."

All the Turks started to their feet.

"What!" cried they, "are these rogues of the insurgents' camp!"

"Ludi covjece! You fool!" shouted Staniza in his turn. "Is not this Teskera signed by Ahmed Beg, of Jarak? And was Ahmed Beg ever known to stand by the insurgents?"

"Who is Ahmed Beg?" said the officer.

"It is he who, some days ago, gained Bijelastjena for our party. It was he who expelled the old Disdar from Vranogra."

"Hm! But who knows whether it was he who signed this Teskera?" said the officer.

"Ama!" cried all the Turks, "thou art right, who knows whether Ahmed Beg ever saw this Teskera?"

"So be it! Who knows whether these rogues did not mean to impose upon us?"

"Ama! who knows it!"

Upon this the officer whispered to his neighbour, and the latter nodded his head.

"Yes!" said the fellow, "they want to impose upon us!"

"Ama! so they do," roared the whole troop in chorus.

One of the captors had long fixed an intent and earnest gaze upon my friend's watchguard. He now stretched out his hand, and coolly helped himself to Richard's watch and chain.

"Ah!" said the officer. "That's it, is it? They are Swabe and spies. Seize them!"

"They are Swabe!"

"Let us seize them!"

"What can they want?"

"Down with the dogs!"

And in an instant we were overpowered and disarmed. Resistance was quite out of the question, for we were three against seventeen.

"Let them go!" said Jusuf. "They are indeed Swabe, but they are peaceable men, and never did *you* any harm."

"They are Swabe. What an enormity! What can they want here?"

"Mussa!" said Staniza, addressing one of the Turks. "I know you well enough, and you know that I am quite as good a Turk as you are."

"Is he a Turk?"

"Ama! I have known him these many years; he is," replied Mussa.

"So much the worse for him," said the officer. "He is one of the insurgents, and he shall suffer for it."

"Ama, let him suffer for it; why should he not? Let us take him to Jasenica, and let the Capitan deal with him as he pleases."

"Jok, by no means!" said the officer. "Jok, tie him up on the spot."

Staniza remained calm and collected. He knew the men he

had to deal with. Protests, threats, prayers, and entreaties were alike lost upon them.

"Very well," said he; "tie me up. I die because such is my fate. But let my friends go their ways."

Never mind them," said Mehmed. "I'll hang them by thy side."

This was not a comfortable assurance. The Turks were serious and determined; they wanted our money. And this desire of theirs seemed to seal our doom. Still I tried to imitate Staniza's equanimity. I looked at him.

"Let me say a word to that little Swaba," said Staniza to the Turk who held him, and coming up to me, he asked me to purchase my own life and Richard's, from the Turks. As for himself, he said, if it was his doom, he was prepared to die. The old man's generosity touched me to the heart, and with something like a choking sensation in my throat, I said I would do my best.

I went up to the officer.

"Listen, Turk! We have some money with us. Let us go away, and it is yours."

"Hm!"

"I will give you all we have—the money and the watches. Do you understand me?"

"Hm! How much have you got?"

"I hardly know. But you shall have all as a ransom for us four."

"I believe you. But why shouldst thou give me what is mine already?"

"I see," said I. "Your right is as good as any other robber's. Take it, and let us go."

"No, I cannot do that."

"Evalah! then take me to Jasenica."

"Why to Jasenica?"

"Because there I can give you ten purses more, which I lent to Captain Sulejman Effendi, when he was at the Rastell, and—"

"Listen, old man!" said the officer, addressing Staniza. "What man is this Swabo?"

"A Doctur."

"A Doctur? We want a Doctur!" cried all the Turks.

"Ama!" said the officer, who had already become enamoured of the ten purses. "Let us give the dog his life and take him with us."

"I'll go," said I, "wherever you like; but my friends must go along with me."

The officer threw a quick glance at his men. His cupidity had now fairly overcome his discretion.

"Hm! Why should it matter?" said he. "We are not afraid of four men."

"Evalah!—we fear them not!"

"Well!—we take these four men to Jasenica."

Staniza and I lighted our pipes, and the officers rifled all our pockets. Day was just breaking when the troops formed, and we, surrounded by our captors, proceeded on our way to Jasenica.

"If the Captain hears of this night's proceedings, know," said the officer, showing me his pistols, "that all the Sultan's treasures shall not avail to redeem thy life. Dost thou understand me?"

"Perfectly!" said I.

We reached Jasenica early in the afternoon, and were some-

what displeased with its appearance. To speak plainly, the place is an abomination of filth and misery; and the fortress, or castellated hovel, which bears that pompous title, has the wretched tumble-down appearance which struck me as the chief characteristic of all Bosnian architecture. With the exception of those eternal dogs, which haunt all Turkish places, there was not a single living being visible in the one street of the city. We were taken to the Captain's Kula, and my honest friend, the officer, dismounted and entered it. I was afflicted with an uncomfortable sensation, when I thought of the Captain, Sulejman Effendi, whom I had never seen, though I had heard his name mentioned; and to whom I had never lent, and much less given, those ten purses, the offer of which had saved my life. Saved it? A fine saving indeed! In a few moments Mehmed must learn that I had imposed upon his credulity; and he ——

"May the Lord have mercy upon us!" ejaculated I, as Mehmed reappeared with the blackest looks imaginable even for a Turk.

"Confound you, Swaba!" said he, "Sulejman Effendi is gone to Prido. He went yesterday!"

"Hm! did I send him?" said I breathing more freely.

He collared me, and dragged me up the steep stairs. Jusuf, Staniza, and Richard were left to follow, without his kind assistance.

The Bimbasha, who officiated in the Capitan's absence, sat in the centre of the room on his crossed legs, smoking. He was a gloomy-looking old man; and his eyes, as they fed on us, expressed vexation and distrust.

"What crime have they committed?" said he at last, looking at the officer.

"None, sir," said I; "none whatever. We were on our road to Sarajewo, and last night, in the forest, these people came and offered——"

Here honest Mehmed interrupted me.

"We captured them because they are of the Insurgent party!"

"Mashallah!" cried I; "this is not true. Have I not a Teskera from Ahmed Beg?—and did not Ahmed Beg expel the Dijdar of Vranograc from Bijelastjena?"

"Show me the Teskera!" said the Bimbasha. I handed it to him, and he examined it carefully.

"It is our own Teskera!" said he. "Let them go! Peace be with them!"

Mehmed looked daggers at me, but I defied him: and, turning to the Bimbasha, I thanked him, in Turkish, having at once understood, from his peculiar accent, that he was not Bosnian born. The sounds of his own language caused him to brighten up, and he called for coffee and chibuks.

"Valah!" said he. "This is the first time I hear Turkish from a Swaba. Who could have thought it!"

"Valah!" replied I, with rather a strong tinge of conceit, "I understand Turkish and Arabic."

"Can you read the Citab?"*

"Certainly."

He mused for a time; and then, as if struck with a very bright idea, started up, and ordered one of the soldiers to run for the Hodza, or teacher. "Tell him," added he, "to bring the Book."

It was not long before the Hodza made his appearance. He stooped low before the Bimbasha.

* That is to say, the Coran.

"Ama!" said that potentate; "hand the book to the little giour; he will sing to us."

The pious man, looking at me with a curious mixture of hatred, scorn, and envy, protested that no unbeliever dared to touch the sacred volume. But the Bimbasha insisted on the book being given into my hands; "For," said he, "you must show me how you can sing the Citab."

I submitted to my fate, and opening the book after I had duly applied my lips to it, I fell to singing the "Bismillah errahman errahim," in pure orthodox Turkish fashion. It so happened that I had lighted on a chapter, which I had read over and over again in the course of my Arabic studies; and I, consequently, acquitted myself to perfection. The old Turk was amused, and the Hodza admitted that my singing was as good as that of the truest believer.

"I wish that little giour would embrace the true faith!" said the Bimbasha; "I would gladly keep him here as Hekim Effendi!" and turning full upon me, he said, in a louder but a most alarmingly insinuating tone:

"Art thou a horseman?"

"Yes!"

"And a smoker of chibubs and a drinker of coffee?"

"Most certainly."

"Behold, these shall be thy labours. Stay with me! Thou shalt live in my own kula, eat at THY MASTER'S table, and ride about with me. Thou shalt have plenty of money and horses; and if thy heart be set upon wedlock, thou mayest marry girls as many as thou pleasest. What canst thou want more?"

I listened with astonishment to this oration—for so it was for a Turk—and, in reply, begged to decline the Bimbasha's generous

offer with my warmest thanks, adding:—"I have a house and a wife in my own country, nor must I leave them behind; and I acknowledge no master except God and his law."

"Hm!—I understand you: you would be your own master. Such things may be in your own country; but *here*," added the Bimbasha energetically—"here there is no master except me and the Sultan."

All the Turks in the room crossed their arms and bowed, while we thought it time to make our adieux. Mehmed and our escort seemed inclined to see us off, but a peremptory order from the Bimbasha kept them back.

In another moment we were on horseback, dashing, at a mad gallop, down the single street of the famous city of Jasenica.

"Allah küvvet versün!—May the Lord give us strength!"—prayed Jusuf, as he spurred his lean horse in advance of the fugitive party. A retreat is the severest trial of human courage; and ours, I grieve to say, was found signally wanting. Each of us urged the others on by the furious speed into which he lashed his own horse, and in this manner, panting, foaming, and all but exhausted, we reached Jusuf's house at nightfall. Early next morning, we proceeded to Jarak, and recounted our adventures and sufferings to the patient ears of Ahmed Beg.

"It is what I expected," said he. "But I thought you had considered the danger, and as my advice was not asked for, I did not give it."

Thus terminated my first and last trip into Bosnia.

A Peep at the "Peraharra."

OF the religious festivals of the Buddhists of Ceylon, that known as the Peraharra is the most important. It is observed at Kandy, the capital of the ancient Kings of Ceylon, and at Ratnapoora, the chief town of the Saffragam district. Few good Buddhists will be absent from these religious observances; and whole families may be seen journeying on foot for many miles, over mountains, through dense jungles and unwholesome swamps, across rapid and dangerous streams, along hot sandy pathways, loaded with their pittance of food and the more bulky presents of fruit, rice, oil, and flowers, to lay at the foot of the holy shrine of Buddha, to be eventually devoured by the insatiable priests.

In the month of July, 1840, I had a peep at the celebrated Peraharra of Ratnapoora, where the shrine sacred to the memory of *Saman*, rivals in attractions the great *Dalada Maligawa* of Kandy. Like its mountain competitor, it has its relic of Buddha enshrined in a richly-jewelled casket, which is made an object of especial veneration to the votaries of that god. *Saman* was the brother of the famed Rama, the Malabar conqueror who invaded Ceylon in ages long past, and extirpated from its flowery shores the race of mighty giants who had held its people in subjection for many centuries—a sort of Oriental King Arthur. To Saman was given the district of Saffragam; and the people of that country, at his death, promoted him to the dignity of a deity, as a slight token of their regard.

The Ratnapoora festival is the more attractive by reason of its being made the occasion of a large traffic in precious stones, with which the neighbourhood abounds. In this way the great part of the Buddhists manage to combine commerce with devotion.

The road to the Saffragam district was, in the time at which I travelled it, a very barbarous and dangerous affair, differing widely from the excellent traces which existed through most of the maritime provinces of Ceylon. It was then, in fact, little more than a mere bullock-track, or bridle-path, with no bridges to aid in crossing the streams which intersect it. The journey from Colombo to Ratnapoora may now be easily performed in one day; at that time it required a good nag and careful diligence to accomplish it in two.

Day dawned as I got clear of the Pettah, or Black town of Colombo, and crossed a small stream which led me to the jungle, or village road I was to follow. In England, we should call such a muddy lane; but here one knows little between the good high roads and the bullock track. Strange as it may sound to home travellers, one is often glad to see the sun rise, and feel it warm the heavy, damp air in the tropics. Before me lay a long straggling line of low jungle, indicating the road; far away in the distance rose the high, bluff hill and rocks towering over the once royal domain of *Avishawella*. Around, on every side, was water, completely hiding the fields from view, and only allowing a bush, or a tree, or a hut-top, to be seen peeping up through the aqueous veil, dotting the wide expanse like daisies in a field. The rains had flooded the whole of the low country, which, inundated by many mountain torrents, could not discharge the mass of streams nearly so fast as it received them. Over and across all this watery wilderness huge masses of misty vapor came rolling and tumbling along, as

though shrouding some titanic water-sprites who had been keeping it up rather late the night before, and were not quite sure of the way home. One might have imagined, indeed, that it was some universal washing-day, and that the great lid of the national copper had just been lifted up.

As the sun rose above the line of black rocks in the distance, its rays lit up those misty monsters of the flood, imparting to them life-like tints, which gave them beauty, and forms they had not known before. As these sun-lit fogs rolled on, a thousand shapes moved fitfully amongst them: troops of wild horsemen; crystal palaces with gilded gates; grim figures playing at bo-peep; hills, towns, and castles; with many a ship at sea, and lovely cottages in quiet sunny glades; all these, and more, seemed there. With the sea-breeze, all that array of cloudy creatures departed, leaving the air hot and stifling from the reflection of the sun's rays in the endless flood above me. But where were the poor Singalese villagers, their families, and their goods, amidst all this wreck? As I jogged along, the cry of a child, the crowing of a cock, the bark of a dog, floated across the ocean of mist, but whence came they? I looked to the right and to the left. I strained my eyes straightforward, but not a soul, or a feather, or a snout, was to be seen. Presently the fog cleared away, and I could see overhead into the trees. There, chairs, tables, chatties, paddy-pounders, boxes of clothes, children in cots, men, women, cats, dogs, all were there in one strange medley, curiously ensconced amongst the wide-spreading branches of the trees. Over their heads, and on each side, mats and cocoa-nut leaves were hung to keep off rain and damp fogs, whilst against each side of the tree was placed a thick notched stick, which served as a ladder for the whole party. Here and there canoes were to be seen paddled

across the fields to keep up communication between the different villages. It was a strange but desolate spectacle, and I was glad to find myself, at last, free from the watery neighbourhood, and once more riding on *terra firma.*

During the heat of the next day I turned aside to a shady green lane. A mile along this quiet pathway I was tempted to rest myself at the mouth of a dark-looking cave, by the side of a running stream of beautiful water. Tying my poney to a bush, I entered at the low archway, and found myself at once in utter darkness; but after a short time I began to distinguish objects, and then saw, close to me, one whom I should have least looked for in that strange, desolate spot. It was a Chinese, tail and all. My first idea was, as I looked at the figure through the dim light of the cave, that it was nothing more than a large China jar, or, perhaps a huge tea-chest, left there by some traveller; but, when the great, round face relaxed into a grin, and the little pea-like eyes winked, and the tail moved, and the thick lips uttered broken English, I took a proper view of the matter, and wished my cavern acquaintance "good morning." I soon gathered the occupation of See Chee in this strange place; the cave we were then in was one of the many in that neighbourhood, in which a particular kind of swallow builds the edible nests so highly prized by the Chinese and Japanese for conversion into soups, stews, and, for aught we know, into tarts. The Chinaman told me, what I was scarcely prepared to learn, that he rented from the Ceylon Government the privilege to seek these birds' nests in this district, for which he paid the yearly sum of one hundred dollars, or seven pounds, ten shillings. Procuring a *chule*, or native torch, the Chinese nest-hunter showed me long ledges of shelving rock at the top of the cavern, whereon whole legions of curious

little gummy-like excrescences were suspended; some were perfect nests, others were in course of formation; and these latter I learnt were the most valued; those which had had the young birds reared in them being indifferently thought of, and were only bought by the lower orders of soup-makers. Having rested myself and pony, I once more pushed on for Ratnapoora, where I arrived, heated, jaded, and dusty, by high noon.

A Chattie bath seldom fails to refresh the Indian traveller, and fit him for the enjoyment of his meal. In the cool of the evening I strolled out to watch the preparations for the nightly festivities. These continue for about a fortnight, chiefly after sunset, though devotees may be seen laying their simple offerings at the foot of the shrine during most part of the afternoon. The little bazaar of the town was alive with business; all vestiges of its wonted filth and wretchedness were hidden beneath long strips of white linen, and garlands of cocoa-nut leaves and flowers hung around by bands of bright red cloth. Piles of tempting wares were there; beads, bangles, and scarfs to decorate; rice, jaggery, and sweatmeats to eat, and innumerable liquors to drink, were placed in profuse array. The streets and lanes poured forth long strings of human beings, heated with the sun, flushed with drink, and bedizened with trumpery jewellery and mock finery. Poor tillers of the soil; beggarly fishermen; mendicant cinnamon peelers; half-starved coolies; lean, sickly women, and poor immature children, passed onwards in the motley throng, burying their every-day misery beneath the savage mirth of a night or two at the Paraharra.

Following the living, dark stream, as closely as the heat, dust, and strange odours would allow me, I arrived, at length, near to the Temple of Saman. The edifice, of which I caught a distant

glimpse, was half concealed beneath the heavy luxuriant foliage of cocoa-nut topes, arekas, plantains, and banyan trees. An ocean of human heads filled up the space around the building, from which proceeded the well-known sounds of the reed and the tom-tom. Gay flags fluttered from the four corners, and the lofty pinnacle in the centre; wreaths of flowers, plaited leaves and ribbons of many colours, waved jauntily from roof to door; whilst round the pillars of the walls and door-posts clustered rich bunches of most tempting fruit.

Close by this busy scene, another group was forming under a large and lofty *Pandahl*, or open bungalow. Forcing my way to one corner of the shed, I found a company of Indian jugglers, consisting of two men, a girl, and a child of perhaps three years. The men were habited in strange uncouth dresses, with large strings of heavy black beads round their necks; the girl was simply and neatly clad in white, with silver bangles and anklets, and a necklace of native diamonds. It would be impossible to detail all their extraordinary performances, which far exceeded anything I had ever read of their art. The quantity of iron and brass-ware which they contrived to swallow was truly marvellous; ten-penny nails, clasp-knives, gimblets, were all treated as so many items of pastry or confectionary, and I could but picture to myself the havoc a dozen of these cormorants would commit in an ironmonger's shop. Not the least remarkable of their feats was that of producing a sheet of water upon the sand close at our feet; and, after conjuring upon its clear surface half-a-dozen young ducks and geese, suddenly causing it to freeze in such a solid mass as to allow of our walking across it without causing so much as a crack in its crystal body. One more feat I must relate; which was that of suspending the girl while seated on a

sort of ottoman, to the ridge-pole of the shed; and at a given signal, removing the rope by which she hung, leaving her still suspended in the air—not with a regular apparatus, such as is used by the performers of a similar trick in London and Paris, but apparently with no apparatus at all! For, to my exceeding amazement, a sword was given to me, as the only European of the company, and I was told to cut and slash as much as I pleased above and around the girl. After some hesitation, I hacked and hewed the air in every direction, around and close to the suspended maiden, with a vigour which would inevitably have cut asunder any means of support; yet there she swung unmoved, without any sort of apparent agent of suspension except the air itself! Snake-charming and dancing completed the entertainment. When I left the place it was night.

Near the temple, all was noise and confusion, and it was with some difficulty that I forced my way through the dense crowd, and reached the steps of the venerated shrine. The priest stationed at the entrance made a way in for me as well as he could, but the pressure inside was intense. Hundreds of men and women pressed eagerly forward to reach the flight of huge stone stairs which led up to the sacred depository. It was as bad as a crush to get into the Crystal Palace. My passage was so slow that I had time to examine and admire the fine antique carved work on the pillars and ceiling of the entrance-hall, as well as on the tall pilasters which lined the ample stair-case. There was a beauty of style and a high degree of finish about this work that could not be attained in Ceylon in the present day. Arrived, at length, at the inner temple or sacred shrine above, I passed with the rest, between a richly-brocaded curtain which hung in folds across the entrance at the top of the stairs, and stood before the famed relic

of Buddha, or rather the jewelled casket which contained it. I felt disappointment at the spectacle here, arising, perhaps, from my taking no interest in the exhibition as a religious ceremony, and looking at it merely as an empty show, not far removed from the status of Bartholomew Fair. The strong glare of a hundred lights, the heat and crowd of so many in so small a place, the sickly perfume of the piles of Buddha flowers heaped before the shrine by the pilgrims, the deafening discordant din of a score of tom-toms, and vile screeching pipes, made me glad enough to descend the stairs, and, flinging a rupee into the poor-box of the god, to escape once more into the open fresh air.

From the votaries of Saman I entered another crowd, assembled round a gaily decorated building, which I at once perceived was a Hindoo temple. Here, to the sound of much music, and by the light of many lamps, a group of young dancing girls were delighting the motley crowd. There were but three of them, one a finely-made, tall, sylph-like creature with really graceful movements; the others younger, stouter and far less pleasing. A good deal of pains had evidently been taken with their dress, which sparkled at all points with what I was assured were precious stones. I have heard that it is not uncommon for these Nautch girls to have jewellery about their dress to the value of twenty thousand pounds. The graceful little jacket which the chief dancer wore over her flowing white robes sparkled and glistened with something which was quite new to me as articles of ornament: along the edge of her pure white garment, shone a whole host of fire-flies, which by some ingenious arrangement had been secured to the dress, and gave a strange and pleasing novelty to the appearance of her attire, as she swept gracefully around in slow and measured steps. The music to which these

people dance is anything but pleasing to an English ear: indeed, there is scarcely a trace of rhythm in it; yet they contrive to measure their mazy and difficult dance by its notes with admirable precision. Long custom has so attached them to their empty meaningless music that they can appreciate no other. I am certain that M. Jullien's band would scarcely be listened to by the Singalese if there were a few tom-toms within hearing. It is a curious fact that in the districts in which these Nautch girls are brought up, education is so rare, that these dancers are generally the only lay persons within many days' journey who can either read or write. The priests can all read, if not write, and they take care to instruct the temple girls, in order to enable them to learn the various songs and legends for recital at their periodic festivals. The rest of the population they keep in the densest ignorance.

Leaving the dancers and priests, I strolled towards the river Kaloo-ganga, whose quiet, palm-shaded banks stood out in sweetest contrast to the noisy revelry I had just beheld. The moon was near the full, and rising high above the many rich green topes of palms, and gorgeous plantains, lit up the peaceful scene with radiance not of earth. It is hardly possible to conceive the magic beauty of moonlight in the tropics: those who have witnessed it can never forget their feelings under its influence. The master hand of our finest painters might attempt to depict it, but the affair would be a dead failure; and did it succeed, strangers to these climes would pronounce it an unnatural painting. Even in its reality, it bears the impress of something half unearthly, and it requires the testimony of the huge fingery leaves, as they wave to the breeze, to assure one that the whole scene is not imaginary. Fully as bright and radiating, though softer in its

hue, than the broad sunshine, the moon poured down in living streams its gifts of ether-light. The monster palms, the slender arekas, the feathery bamboos and tamarinds, revelled in the harmony and glow of radiant moonlight, which leaping down in phosphorescent waves, sprang on from leaf to flower, from bud to herb, and streaming through the waving seas of giant, emerald grass, died sparkling at its feet.

Some of the topes along this gentle river grew so thickly that not the faintest ray of light found its soft way amongst them: the deepest shade was there, and only in one of these could I trace any vestiges of living beings. A little hut was burned far away in the inmost recesses of a tope—all bright above, all gloom below. The door was open, and from it shone a faintly glimmering light; so tiny was the ray amidst that heavy shade, so distant did it seem, that it defied all conception of space, and made my eyes ache to gaze at it. I, at length, distinguished faint sounds proceeding from it. They were those of a regular harmony. Strolling nearer, I heard that they proceeded from cultivated voices. What a sensation! The music was that of the "Evening Hymn!" and it came upon me with the echoes of the uncouth Babel of Heathenism I had just left still ringing in my ears, like the sunlight on a surging sea. When I recovered from the delightful surprise, I found that the singers were the family of a native missionary who had embraced Christianity.

The next day the bazaar was crowded with dealers in and diggers for precious stones. Hundreds of Moormen, Chitties, Arabs, Parsees, and Singalese were busily employed in barter; and a most noisy operation it was. In the neighbourhood of Ratnapoora exist many tracts of clayey and gravelly land, rich in rubies, sapphires, garnets, turquoise, and cat's-eyes. For the

privilege of digging for these, or of sifting them from the sands of some of the rivers, the natives pay heavy rents to Government; often sub-letting the ground, at large profits, to needy speculators. Their harvest is usually offered for sale during the Peraharra; and, be their gains what they may, they are generally rid of the whole amount before the end of the festival. The existence of this source of wealth is, unfortunately, a bane, rather than a blessing, to the district; for whole villages flock to the ruby-grounds, delving and sifting for weeks together, utterly neglecting their rice-fields and gardens. Arrack taverns have multiplied, intemperance has increased, long tracts of fertile land have ceased to be sown with paddy, and the country-people now buy their food from strangers, in place of growing it, as formerly. It will be a happy time for Saffragam when its stores of precious stones shall be exhausted; for not till then will peaceful industry be once more sought.

Struggling and forcing a way through the busy crowd were to be seen one or two Hindoo fakeers, most repulsive objects depending for subsistence on the alms of pilgrims and others. One of these wretched creatures, in the fulfilment of a vow, or as an act of fancied righteousness, had held his left arm for so many years erect above his head, that it could not now be moved—and grew transfixed, emaciated, and bony. It seemed more like a dry, withered stick tied to the body than a part of itself. The other fakeer had closed his hands so long that the finger-nails had grown quite through the palms, and projected at the back of them: these miserable-looking objects appeared to reap a tolerable harvest, and seemed to be then in no pain.

Under the shade of a banyan tree, a grave-looking Moorman was amusing a crowd of boys and women with the recital of

some wonderful or silly legend. The trade of story-telling, in the East, is still a profitable one, if I might judge from the comfortable appearance of this well-clad talker.

When I left Ratnapoora crowds were still flocking into the town, for on the morrow the huge temple elephants were expected to march in procession through the place, decked out in all sorts of finery, and bearing the casket and relic; but it was a wearisome spectacle, and I was heartily glad to find myself once more on my pony, quietly winding through green paddy-fields and under shady topes.

Student Life in Paris.

THE first impression of the Student of Students in Paris is one of curiosity. "When do the students find time to study?" is the natural inquiry. The next impression solves the mystery, by leading to the satisfactory conclusion, that the students do *not* find time to study. To be sure, eminent physicians, great painters, and acute lawyers, do occasionally throw sufficient light upon society to render its intellectual darkness visible. And the probabilities are that these physicians are not born with diplomas, as children are, occasionally, with cauls; nor the painters sent into the world with their pencils at their fingers' ends; nor the lawyers launched into existence sitting upon innate woolsacks. The inference, then, is, that education has done something towards their advancement, and that they, necessarily, have done something towards their education.

But the lives of great men are the lives of individuals, not of masses. And with these I have nothing now to do. It is possible that the Quartier Latin contains at the present moment more than one "mute inglorious" Molière, or Paul de Kock, guiltless, as yet, of his readers' demoralisation. Many a young man who now astonishes the Hôtel Corneille, less by his brains than his billiards, may one day work hard at a barricade, and harder still, subsequently, at the galleys! But how are we to know that these young fellows, with their long legs, short coats, and faces patched over with undecided beards, are geniuses, unless, as our excellent friend, the English plebeian, has it, they "behave as

such?" Let us hope, at any rate, that, like glow-worms, they appear mean and contemptible in the glare of society, only to exhibit their shining qualities in the gloom of their working hours.

It is only, then, with the outward life of the students that I have to deal. With this, one may become acquainted without a very long residence in the Quartier Latin—that happy quarter where everything is subservient to the student's taste, and accommodated to the student's pocket—where amusement is even cheaper than knowledge—where braces are unrespected, and blushes unknown—where gloves are not enforced, and respectability has no representative.

If the student be opulent—that is to say, if he have two hundred francs a month (a magnificent sum in the quarter) he lives where he pleases—probably in the Hôtel Corneille; if he be poor, and is compelled to vegetate, as many are, upon little more than a quarter of that amount, he lives where he can—no one knows where, and very few know how. It is principally from among this class, who are generally the sons of peasants or *ouvriers*, that France derives her great painters, lawyers, and physicians. They study more than their richer comrades; not only because they have no money to spend upon amusement, but because they have, commonly, greater energy and higher talents. Indeed, without these qualities they would not have been able to emancipate themselves from the ignoble occupations to which they were probably born; unlike the other class of students, with whom the choice of a profession is guided by very different considerations.

It is a curious sight to a man fresh from Oxford or Cambridge to observe these poor students sunning themselves at midday, in the gardens of the Luxembourg—with their sallow, bearded faces,

bright eyes, and long hooded cloaks, which, notwithstanding the heat of the weather, "circumstances" have not yet enabled them to discard. Without stopping to inquire whether there really be anything "new under the sun," it may be certainly assumed that the garments in question could not be included in the category. If, however, they are heavy, their owners' hearts are light, and their laughter merry enough—even to their last pipe of tobacco. After the last pipe of tobacco, but not till then, comes despair.

The more opulent students resemble their poorer brethren in one respect:—they are early risers. Some breakfast as early as seven o'clock; others betake themselves by six to their *atéliers*, or lectures—or pretend to do so—returning, in two or three hours, to a later meal. This is of a substantial character, consisting of two or three courses, with the eternal *vin ordinaire*. When living in a hôtel, the student breakfasts in the midst of those congenial delights;—the buzz of conversation, the fumes of tobacco, and the click of the billiard-balls. By means of these amusements, and sundry *demi tasses* and *petits verres*, he contrives to kill the first two or three hours after breakfast. Cards and dominoes are also in great request from an early hour, and present to an Englishman a curious contrast with his own national customs. In England he is accustomed to find card-playing in the morning patronised only by the most reckless; in France it is the commonest thing in the world to see a pair of gentlemen with grey hairs and every attribute of respectability, employed, at nine o'clock, upon a game of *écarté*, enlivened by little glasses of brandy and the never-failing pipe. If a young Englishman in London, instead of an old Frenchman in Paris, was to addict himself to such untimely recreations, he would probably be cut off with a shilling.

When the heat and smoke of the *café* become too much even for French students, they drop off by twos and threes, and seek the fresh air. The Luxembourg Gardens are close by, and here they principally congregate. Amusing figures they look, too, in their present style of costume, which is a burlesque upon that of the Champs Elysées, which is a burlesque upon that of Hyde Park. The favourite covering for the head is a very large white hat, with very long nap; which I believe it is proper to brush the wrong way. The coat is of the paletôt description, perfectly straight, without shape or make, and reaching as little below the hips as the wearer can persuade himself is not utterly absurd. The remainder of the costume is of various shades of eccentricity, according to the degree of madness employed upon its manufacture. As for the beard and moustaches, their arrangement is quite a matter of fancy: there are not two persons alike in this respect in the whole quarter: it may be remarked, however, that shaving is decidedly on the increase.

The Luxembourg Garden is principally remarkable for its statues without fingers, almond trees without almonds, and *grisettes* without number. Its groves of horse-chestnuts would be very beautiful if, in their cropped condition, they did not remind the unprejudiced observer—who is, of course, English—of the poodle dogs, who in their turn are cropped, it would seem, to imitate the trees. The queens of France, too, who look down upon you from the pedestals at every turn, were evidently the work of some secret republican; and the lions that flank the terraces on either side, are apparently intended as a satire upon Britain. However, if one could wish these animals somewhat less sweet and smiling, one could scarcely wish the surrounding scene more so than it is, with its blooming shrubs and scarcely less

blooming damsels, gaily decorated parterres, and gaily attired loungers, the occasional crash of a military band, and the continual recurrence of military manœuvres.

Just outside the gates, near the groves of tall trees leading to the Barrière d'Enfer, there is always something "going on"—more soldiers, of course, whom it is impossible to avoid in Paris, besides various public exhibitions, all cheap and some gratuitous. On one side, you are attracted by that most irresistible of attractions—a crowd. Edging your way through it, as a late arrival always does, you find yourself, with the body of students whom you followed from the hôtel, "assisting" at the exhibition of a wonderful dog, who is doing nothing, under the direction of his master, in general a most repulsive-looking rascal, bearded and bloused as if hot for a barricade. The dog, by doing nothing, is not obeying orders;—on the contrary, he is proving himself a most sagacious animal by having his own way in defiance of all authority. This the master attributes, not to the stupidity of the dog, but to the absence of contributions from the spectators. A few sous are showered down upon this hint; which proceeding, perhaps, brings out the dog's talents to a slight extent; that is to say, he is induced to lie down and pretend to be asleep; but it is doubtful, at the same time, whether his compliance is attributable to the coppers of his audience, or the kicks of his spirited proprietor. This is probably the only performance of this wonderful animal; for it is remarkable that whatever the sum thrown into the circle, it is never sufficient, according to the exhibitor, to induce him to show off his grand tricks, so high a value does he place upon his own talents.

Who, among a different class of the animal creation, does not know what is called a "genius," who sets even a higher

value upon his talents, who is equally capricious, and who certainly has never yet been persuaded to show off his "grand trick?"

You are probably next attracted by a crowd at a short distance, surrounding an exhibition, dear to every English heart—that of "Punch." The same familiar sentry-box, hung with the same green baize, hides the same mysteries which are known to everybody. But the part of "Hamlet"—that is to say "Punch"—though not exactly omitted, is certainly not "first business." His hunch has lost its fulness; his nose, its rubicundity; and his profligacy, its point. He is a feeble wag when translated into French, and has a successful rival in the person of one Nicolet—who, by the way, gives its name to the theatre—and who is chiefly remarkable for a wonderful white hat, and a head wooden enough, even for a low comedian.

Nicolet is supposed to be a fast man. His enemies are not policemen and magistrates, as in the case of "Punch," but husbands—for the reason that his friends are among the wives. This seems to be the "leading idea" of the drama of Nicolet, in common, indeed, with that of every other French piece on record. If it were not considered impertinent in the present day to draw morals, I might suggest that something more than amusement is to be gained by contemplating the young children among the crowd, who enjoy the delinquencies of this *Faublas* for the million, with most precocious sagacity. It is delightful, in fact, to see the gusto with which they anticipate inuendos, and meet impróprieties half way, with all the well-bred composure of the most fashionable audience.

It is not customary amongst the students to wait for the end of Nicolet's performances. The fashionable hour for departure

varies; but is generally about the period when the manager's wife begins to take round the hat.

Any one who accompanies a party of students in their morning rambles, will most probably find himself, before long, in the "Closerie des Lilacs," which is close by the same spot. The "Closerie" is associated in name with lilacs, probably from the fact that it contains fewer flowers of that description than any other place in the neighbourhood. It is a garden somewhat resembling Vauxhall; and at dusk there is an attempt made at lighting it up, especially on certain evenings in the week which are devoted to balls. These balls do not vary materially from any other temporary dances, either in London or Paris; but as a morning lounge, the place is not without attractions. One of them, is the fact that there is no charge for admission, the proprietor merely expecting his guests to *convenue* something—a regulation which is generally obeyed without much objection.

Throughout the whole day may here be seen numerous specimens of the two great classes of the quarter—students and grisettes; some smoking, and drinking beer and brandy in pretty little bosquets, others disporting themselves on a very high swing, which would seem to have been expressly constructed for the purpose of breaking somebody's neck, and to have failed in its object, somehow, like many other great inventions. *Ecarté* is also very popular; but the fact that its practice requires some little exertion of the intelligence, so very inconvenient to some persons, will always prevent it from attaining entire supremacy in a place so polite as Paris. To meet this objection, however, some ingenious person has invented an entirely different style of game; an alteration for which the Parisians appear deeply grateful. A small toad, constructed of bronze, is placed upon a stand, and into

its open mouth the player throws little leaden dumps, with the privilege of scoring some high number if he succeeds, and of hitting the legs of the spectators if he fails. At this exciting game a party of embryo doctors and lawyers will amuse themselves at the "Closerie" for hours, and moreover exhibit indications of a most lively interest. The great recommendation of the amusement, I believe, is, that the players *might* be doing something worse; a philosophical system of reasoning, which will apply to most diversions—from pitch-and-toss to manslaughter.

A few hours of this amusement is scarcely necessary to give the student that sometimes inconvenient instinct—an appetite. Accordingly, at about five he begins to think about dining; or, rather, he begins to perform that operation, for he has been thinking about it for some time.

Dining, in the weak imagination of conventional persons, usually induces visions of Vefour, and is suggestive of Provençal fraternity. But the student of the Quartier Latin, if he indulges in any such visions, or is visited by any such suggestions, finds their end about as substantial as their beginning. His dreamy dinners have, alas! no possibility of realisation. Truffles to him are tasteless, and his "trifles" are literally "light as air." Provence provides him, unfortunately, with more songs than suppers, and the fraternal associations with which he is best acquainted are those of the Cuisiniers in the Rue Racine or Rue des Mathurins.

It is, very probably, with one of these "*Associations Fraternelles des Cuisiniers*" that the student proceeds to dine. These societies, which are fast multiplying in every quarter of Paris, are patronised principally by Republicans who are red, and by Monarchists who are poor. The former are attracted by sympathy, the latter are driven by necessity. Indeed, a *plat* at six

sous, which is the usual price at these establishments, is a very appropriate reward for the one, or refuge for the other. At these establishments—which had no existence before the last revolution —everybody is equal; there are no masters, and there are no servants. The *garçons* who wait upon the guests are the proprietors, and the guests themselves are not recognised as having any superior social position. The guest who addresses the waiter as "*garçon*" is very probably insulted, and the *garçon* who addresses a guest as "*monsieur*" is liable to be expelled from the society. In each case "*citoyen*" is the current form of courtesy, and any person who objects to the term is free to dine elsewhere. Even the dishes have a republican savour. "*Macaroni à la République*," "*Fricandeau à la Robespierre*," or "*Filet à la Charrier*," are as dear to republican hearts as they are cheap to republican pockets.

A dinner of this kind costs the student little more than a franc. If he is more ostentatious, or epicurean, he dines at Risbec's, in the Place de l'Odéon. Here, for one franc, sixty centimes, he has an entertainment consisting of four courses and a dessert, inclusive of half a bottle of *vin ordinaire*. If he is a sensible man, he prefers this to the Associated Cooks, who, it must be confessed, even by republicans of taste, are not quite what might be expected, considering the advancing principles they profess.

After dinner, the student, if the Prado or some equally congenial establishment is not open, usually addicts himself to the theatre. His favourite resort is, not the Odéon, as might be supposed, from its superior importance and equal cheapness, but the "Théâtre du Luxembourg," familiarly called by its frequenters—why, is a mystery—"Bobineau's." Here the student is in his element. He talks to his acquaintances across the house; in-

dulges in comic demonstrations of extasy whenever Mademoiselle Hermance appears on the scene, and, in short, makes himself as ridiculous and contented as can be. Mademoiselle Hermance, it is necessary to add, is the goddess of the quarter, and has nightly no end of worshippers. The theatre itself is everything that could be desired by any gentleman of advanced principles, who spurns propriety, and inclines himself towards oranges.

After the theatre the student probably goes home, and there I will leave him safely. My object has been merely to indicate the general characteristics of his ordinary life, from which he seldom deviates, unless tempted by an unexpected remittance to indulge in more costly recreations, afforded by the Bal Mabille or the Château Rouge.

Tahiti.

MADAME IDA PFEIFFER, of Vienna, a lady, favourably known to the reading public of Germany as the pleasant narrator of a Pilgrimage to the Holy Land, and of various Tours in different parts of Europe, has recently published an account of her travels round the World. In her preface, she states that an uncontrollable desire to travel, and to see distant and little known regions, impelled her to undertake the bold enterprise, the details of which are now recorded in three little volumes, entitled "A Lady's Travels round the World."* In the course of so extensive a circuit, much that is curious and interesting must have presented itself to an intelligent observer like Madame Pfeiffer. We subjoin, with some abridgment, her account of Tahiti and its inhabitants.

It may be well to premise, that until lately Tahiti was under the protection of England, but it is now transferred to France. The island was long an object of dispute between the Governments of both nations; but in November, 1846, peace was concluded. Queen Pomare, who, during the interval of contention, fled to another island, had returned to Papeiti, one of the chief cities, a few weeks before Madame Pfeiffer arrived there. Her abode was a small house containing only four rooms, and she dined every day at the residence of the Governor. A suitable abode is now being built for the Queen, by the French Govern-

* Frauenfahrt um die Welt.

ment, from which Her Majesty receives a pension of twenty-five thousand francs per annum.

Papeiti, the port, is surrounded by coral-reefs, which defend it like the outworks of a fortress, and render its entrance at once difficult and dangerous. Between the rocks, against which the billows break with frightful force, a very narrow opening barely affords sufficient room for the passage of ships. On our approach, says Madame Pfeiffer, a pilot came out to us, and, in spite of a very adverse wind, we succeeded in working our way safely into the harbour. After we had landed, we were congratulated on our lucky escape; the people who were anxiously watching our entrance assured us that at one moment we nearly struck on a coral bank—an accident which had a short time previously befallen a French vessel.

Before we cast anchor, we observed some half-dozen Pirogues making towards us; and in the space of a few minutes our deck was thronged with Indians, who nimbly climbed up the ship's sides to offer us fruit and shell-fish. But these luxuries are not now, as they were in Captain Cook's time, obtained in exchange for glass beads and bits of red cloth. They are to be had for money only; and our Tahitian visitors showed us that they knew how to drive bargains and extort high prices as well as the most practised hucksters of Europe. I presented to one of the Indians a ring made of some kind of gilt metal. He took it; and after smelling it, shook his head, giving me to understand that he knew it was not made of gold. Observing a ring on my finger, he took my hand, and whilst he smelt the ring, a pleasant smile that lighted up his features seemed expressive of a request that I would give it to him.

We found Papeiti (on the 25th of April, 1847,) full of French

troops, and several French ships were lying in the harbour. The town, which contains between three and four thousand inhabitants, consists briefly of a range of wooden houses with gardens extending along the shore. A noble forest, crowning a range of hills, forms the background of the scene, and here and there on the upland are scattered many small huts.

The only buildings of any commodious size, are the Governor's house, the French magazine, the military bakehouse (whence the barracks are supplied with bread), and the Queen's residence, not yet completed. Many little wooden houses, containing only one room, had been hastily constructed, to supply the demand for dwelling places, which, when I was there, were so scarce, that French officers of rank were glad to take up their quarters in wretched Indian huts.

I looked about in vain for a lodging. Nowhere could I find a single room to let; and at length I was fain to content myself with part of a room—in short, literally a corner. This accommodation I found in a hut, occupied by a carpenter, his wife, and two children. A space about six feet in length, and four in width, was allotted to me behind the door. The floor was not boarded, and the walls were formed of staccadoes or palisades. There was neither bedstead nor chair; and yet, for this lodging I was obliged to pay very exorbitantly.

The hut of a Tahitian Indian frequently has no walls, and consists merely of a roofing of palm-leaves supported on poles. Even those better sort of huts, which have palisadoed walls, are not divided into compartments; all comprise only one room, the dimensions of which usually vary from twenty to fifty feet in length, and from ten to thirty in breadth. The whole furniture consists of mats of plaited straw, some coverings for beds, a few wooden

chests, and possibly one or two jointed stools; the latter, however, rank among superfluities. Of cooking utensils or apparatus, the Indians possess none. Their food is all baked in stone ovens. The stones are heated, and the meat is put into the oven without any dish. At table, one knife suffices for a whole party; and a cccoa-nut shell serves as a basin to contain water for their drink.

The missionaries who have successively resided here during the last fifty years, have wrought a change in the dress of the natives, especially those in the neighbourhood of Papeiti. Still, however, their costume is sufficiently characteristic of savage life. Both men and women wear a garment called the *pareo;* it is a sort of petticoat made of coloured cloth and fastened round the waist by a band. By the women it is worn long enough to descend to the ankles; but the men have it much shorter, reaching only to the knee. The men wear a short shirt of coloured cotton over the *pareo*, and under it they frequently have loose trousers. The upper garment of the women is a sort of long full blouse. Both sexes wear flowers in their ears instead of ear-rings, the hole in the lobe of the ear being bored sufficiently large to admit of flower stalks being easily drawn through it. The Tahitian women, old as well as young, adorn themselves profusely with flowers and foliage, of which they form very tasteful wreaths and bouquets. I also frequently saw men wearing wreaths round their heads. On holidays and other festive occasions, they wear, in addition to their ordinary dress, an upper garment called the *tiputa*. This is made of a material of their own manufacture, prepared from the bark of the bread-fruit and cocoa-nut trees. The bark, when newly stripped from the tree, is beat and pressed with stones until it becomes as thin as paper; after which it is coloured yellow and brown.

I visited a little wooden building used as a place of worship. It was thronged by Indians, all of whom had been converted to Christianity. They called themselves Protestants; but, of the faith they professed they knew nothing but the name. Before entering the house of prayer they all divested themselves of their floral ornaments, with which they again decorated themselves on departing. Some of the women wore black satin blouses; others, who were resolved on being particularly fine, appeared in bonnets —gay creations of Parisian millinery, of a fashion which has been obsolete for at least half-a-dozen years. It is impossible to conceive the ludicrous effect produced by the broad, flat faces of these Tahitian belles, under their fantastically shaped bonnets.

Whilst the psalms were being sung, an air of devotion pervaded the congregation, many of whom joined in the singing with tolerable correctness; but during the delivery of the sermon, the clergyman was listened to with the utmost indifference. The children were engaged in playing, quarrelling, and eating; and of the grown-up portion of the assembly, those who were not gossipping were sound asleep. I was assured that most of the natives are able to read, and that many of them can write; but, during worship in the church, I saw only two individuals (aged men) make use of their bibles.

The Tahitians are tall in stature, and strongly made. Men of six feet high are by no means uncommon. The women are likewise tall, and, in general, very stout. The men are decidedly handsomer than the women. Both sexes are alike remarkable for beautiful white teeth, and fine dark eyes; all have very large mouths, thick lips, and broad, flat noses; the latter are so highly admired, that, as soon as an infant is born, it is customary to press down the cartilages of the nose, in order to give to the

feature the broad, flat form which is an indispensable condition of Tahitian beauty. Both men and women have long black hair, which hangs down their backs in one or two thick plaits. The complexion of these islanders is copper colour. Nearly all of them are tattooed on the lower limbs; but the hands, feet, and all other parts of the body are free of these ornaments. The figures employed in this tattooing, chiefly arabesques, are frequently executed with much artistic taste.

The Governor of Tahiti, M. Bruat, made arrangements for some grand public festivities on the first of May, in honour of the *fête* of Louis Philippe. In the forenoon, a sham sea-fight was got up under the superintendence of the sailors belonging to the French ships in the port. This being ended, the spectators adjourned to a meadow to witness feats of agility, exhibited by some of the natives in climbing a Maypole. At the summit of this pole coloured handkerchiefs and other trifles were the prizes won, to those who were lucky enough to reach them. At noon the principal native chiefs were invited to a grand feast prepared for them on the lawn fronting the Governor's house. The banquet consisted of salt meat, bacon, bread, roasted pigs, and fruits of various kinds. But the guests, instead of sitting down, as was expected they would, to partake of the delicacies provided for them, divided the whole into portions, and each carried his share home with him. In the evening there were fire-works, illuminations, and a ball.

I was present at this ball, and was vastly amused and interested. The assembled company exhibited the most ludicrous contrasts of art and nature. Elegant Parisian ladies were seated, side by side, with coarse, swarthy, native females; and French staff officers, in full uniform, might be seen holding conversation with

half-naked Indians. Several of the natives, desirous of making a particularly elegant appearance on this occasion, wore loose white trousers; others had no other clothing than the *pareo* and the loose shirt over it. One of the chiefs, arrayed in this costume, was a most pitiable object; he was perfectly crippled by *elephantiasis.*

On the occasion of this ball I saw Queen Pomare for the first time. Her figure is tall and stout, but very well formed. She is thirty-six years of age, but fresh and blooming; and I have observed that the women of Tahiti retain their youthful appearance to a more advanced period of life than the women of other warm climates. The countenance of Queen Pomare is pleasing, and is almost continually animated by a good-humoured smile. She wore a robe of azure-blue satin, made very full, and somewhat in the form of a blouse. It was trimmed with rich black blonde, set on in double rows. In her ears she wore sprigs of jasmin, and a profusion of flowers were wreathed in her hair. In her hand she held a beautifully-worked cambric handkerchief, trimmed with very rich broad lace. On that evening she wore stockings and shoes; but Her Majesty, on ordinary occasions, goes bare-footed. I was informed that the dress worn by Queen Pomare at this ball was a present from King Louis Philippe.

The Queen's Consort, who is somewhat younger than herself, is exceedingly handsome. The French have surnamed him "*Prince Albert of Tahiti*," not only on account of his good looks, but because, like Prince Albert in England, he is not the King regnant. At the ball he appeared in the uniform of a French General Officer, and wore it with tolerable grace.

Besides Queen Pomare and her Consort, there was another

royal personage in the company. This was King Otoume, the sovereign of one of the neighbouring islands. He was dressed in the most comical style imaginable. He wore a pair of white trousers very wide and short. Over his other garments was a kind of surtout, made of cotton of a bright canary colour. It had evidently been made in imitation of a European coat; but its shape and style of fitting proclaimed it to be a production of native genius, rather than the handiwork of a Parisian tailor. The King was bare-footed.

The Queen's ladies in waiting, four in number, were dressed in blouses of white muslin. They also had flowers for ear ornaments, and wreaths in their hair. Their manners and deportment were not devoid of grace. These young ladies danced quadrilles with some of the French officers; but it was painful to see them dance with their bare feet; and I was continually apprehensive that their toes would be trodden on by their partners' boots. Except the Queen and her Consort, none of the natives had shoes or stockings. A few of the more elderly females wore faded old-fashioned bonnets for head dresses; and several young mothers were accompanied by their children—even infants in arms.

A short time before supper was announced, the Queen withdrew into an adjoining apartment to smoke a cigar; and whilst her Majesty was thus engaged, her consort amused himself by a game at billiards.

At supper, I had the honour of sitting between Prince Albert of Tahiti and the canary-coloured King of Otoume. Both were sufficiently initiated in the rules of good breeding to show me such ordinary marks of attention as filling my glass with water or with wine, helping me to the dishes near them. It was evident that they took vast pains to imitate European manners.

Nevertheless, some of the guests now and then committed themselves, by doing the most extraordinary things. The Queen herself, having desired an attendant to bring her a plate, placed upon it a large assortment of sweatmeats and dainties, which her Majesty selected for the purpose of carrying them home with her. It was also found necessary to check several of her company in their too copious libations of champagne; but, on the whole, the party, though exceedingly merry, was tolerably decorous.

I subsequently dined several times with the Royal Family at the residence of the Governor. On those occasions, the Queen, as well as her husband, appeared in the national costume—the colored *pareo*, and the loose upper garment; both were barefooted. The heir to the throne, a boy of nine years of age, is already betrothed to the daughter of a neighbouring king. The future bride, who is two or three years older than the prince, resides at the court of Queen Pomare. She has been brought up in the Christian religion, and has been taught the English language.

Tati, the principal native chief of the Island, who had come to the port to be present at the festivities on the first of May, was now about to return, with his family, to his residence at Papara; and a French officer, who was to escort the chief, proposed that I should join the party. To this proposition I very readily acceded; and on the 4th of May we embarked in a sailing-boat to proceed along the coast of Papara, a distance of thirty-six nautical miles. Tati, the chief, a venerable old man, ninety years of age, perfectly well remembered the landing of Captain Cook. His father, at that time first chief of the island, formed a close friendship with Cook; and, in conformity with a custom then prevalent in Tahiti, he changed names with the English navigator.

Tati receives from the French Government an annual pension of six thousand francs, which, at his death, will revert to his eldest son. He had with him his wife, a young woman, apparently about twenty-five years of age, and five of his children, the offspring of a previous marriage. The lady who travelled with us was his fifth wife.

We passed several interesting points as we sailed along the coast. Nor was the sea itself less interesting than the romantic scenery on shore. Our little skiff glided over shallows, where, through the clear crystal current, every pebble,—nay, almost every grain of sand was perceptible. Looking down through the translucent waves, I beheld groups of coral and madrepore, presenting such exquisite masses of form and colour, that I readily could have lent faith to the fanciful superstition which supposes the existence of fairy gardens at the bottom of the sea. In the wide-spreading ramifications of marine vegetation might be pictured miniature groves and arabesque parterres, interspersed here and there with hillocks of sponge. Multitudes of little transparent fishes darted to and fro, revelling in colour and radiance, the variegated hues of the butterfly, and the brightness of the glow-worm. These tiny fishes were scarcely an inch in length. For splendour of colouring, I scarcely ever beheld anything to equal them. Some were of clear azure blue, some bright yellow, and others, nearly transparent, exhibited richly shaded tints of brown and green.

We had left Papeiti about noon; and at six o'clock, when the sun was setting, it was resolved that we should not pursue our course further that evening, as the numerous rugged cliffs which fringe that part of the coast render the passage somewhat unsafe, after dark. We therefore landed at Paya (a place situated about

twenty-two miles from Papeiti) of which the sixth son of Tati is the ruling chief.

In honour of his father's visit, the young chief ordered a supper to be prepared. A pig was accordingly killed, and cooked in the Tahitian fashion. A hollow dug in the ground contained a number of stones, round which a fierce fire was kindled. Meanwhile bread-tree fruits were skinned and divided into halves by a sharp wooden hatchet. When the fire burned up, and the stones were sufficiently heated, the pig and the bread-fruits were put into the oven, and heated stones laid over them. The whole was then covered over with leaves, branches of trees, and finally with a layer of earth.

Whilst the supper was being cooked by this process, the table was laid out. A straw mat having been spread on the ground, large leaves, intended to serve as plates, were placed upon it. As a drinking-cup, each guest was furnished with a cocoa-nut shell; half filled with a sort of acid beverage, called *Miti*.

In about an hour-and-a-half supper was announced to be ready; and though the pig was not prepared in the most tempting style, yet it was consumed with inconceivable rapidity. By the help of a single knife the pig was divided into as many portions as there were individuals to partake of it; and each one was helped to his or her share, together with half a bread-fruit, placed on a leaf. Excepting the French officer, old Tati, his wife, and myself, no one sat down at the rustic table; it being inconsistent with the customs of the country for the host to eat with his guests, or a child with his parent.

On our arrival at Papara, we were informed of the death of one of Tati's sons. The event had taken place a few days previously, but the funeral was deferred until the arrival of the aged

chief. I visited the hut, and the attendants gave me a new pocket handkerchief, directing me to offer it as a present to the departed. This custom of offering presents to the dead, is still kept up by the Tahitians—even those among them who have become converts to Christianity. The body lay in a coffin, resting on a low bier; both coffin and bier were overspread with a sort of white paint or lacker. Before the bier two straw mats were spread. On one of these mats were placed all the clothes, drinking-cups, knives, &c., which had belonged to the deceased. On the other lay a vast collection of presents, consisting of shirts, pareos, handkerchiefs, bits of cloth, &c.

I attended the ceremony of the interment. The priest delivered a short oration over the grave, and when the coffin was lowered, the mats, the straw hat, and the clothes of the deceased, together with some of the presents, were thrown into the grave. In the vicinity of the place of interment there were some ancient Indian tombs called *Murais*. They were quadrangular spaces surrounded by stone walls four or five feet high. Within the *Murai* or quadrangle, the corpse used to be laid, resting on a wooden framework. There it was left until nothing remained but the skeleton, which was afterwards buried in some sequestered spot.

After my return from Papara, I made a visit to Venus Point, a little tongue of land, on which Captain Cook stationed himself to observe the transit of Venus over the sun's disk. The stone on which his telescope was fixed is still on the spot where it then was.

One of my most interesting excursions was to Fontana and the Diadem. Fontana is a point which the Tahitians considered to be impregnable, and where, nevertheless, they sustained the most

signal defeat by the French during the last war. Governor Brouat obligingly lent me his horse to make this excursion, and he sent with me as a guide a sub-officer, who had been engaged in the action, and who explained to me the positions and movements of the hostile forces.

For the space of six miles I rode through thick forests and deep ravines, intersected by mountain torrents. In many parts of these ravines, extremely narrow passes are flanked on either side by steep and inaccessible mountains; so that here, as in ancient Thermopylæ, a small band of brave warriors were enabled to keep at bay a strong and numerous army. The defiles of Fontana may be said to be the key to the whole island. During the late war Fontana was the principal stronghold of the Tahitians, and the only mode by which the French could hope to carry the important position was by climbing up an almost perpendicular precipice, and thereby reaching a narrow ridge near the summit. General Brouat announced his wish that this dangerous enterprise should be entrusted only to volnnteers; and sixty-two men were selected from the very considerable number who eagerly offered themselves. After twelve hours of difficult and perilous exertion, the gallant adventurers at length gained the summit. As soon as they appeared in sight, the dismayed Indians threw down their arms, exclaiming, "These are not men, for that steep acclivity is inaccessible to mortal footsteps. They must be spirits; therefore let us surrender, for it is needless to attempt defence."

At Fontana, a little fort, surmounted by a watch-tower, has been built. It is reached by a footpath running along a narrow mountain ridge, beneath which yawns a chasm of unfathomable depth. For persons liable to vertigo, it would be dangerous to attempt to walk along this path, which, however, commands a

magnificent prospect over the surrounding country. Mountains, valleys, ravines, and waterfalls diversify the romantic scene; and high above every other object in the landscape towers the Diadem. I reached that colossal mass of rock after a three hours' ride along a very difficult road. The prospect from the Diadem is still grander than that from the fort, extending in two directions, far beyond the boundaries of the island, and to some distance over the sea.

This was my last excursion in the lovely island of Tahiti.

Old Cairo and its Mosque.

ONE of the most agreeable places in Egypt is old Cairo, either to pass through, or to reside in. After jogging through a mile or two of narrow bustling streets, with tall houses and balconies jealously excluding the sun, and leaving the sacred precincts of Sitti Zeyneb behind, you emerge suddenly behind rubbish-mounds and villages into full view of the great aqueduct, winding down on your left to the river's edge. The sun beats, and the wind blows clouds of dust; donkeys laden with burseem, camels, and—such is the progress of civilisation—water-carts, pour along in unbroken succession; women scream, and men roar, and beggars importune. Luckily the navigation is short. You go round the head of the aqueduct, and suddenly find yourself in the nicest little street you can imagine, the entrance shaded by trees, and the distant vista prolonged by trees—the houses small and quiet-looking, with flowers in the windows and pretty faces at the doors—nothing but the costume to tell you that you are not in a tranquil village in England.

A little farther the scene changes—you are almost out in the country again; and the breaks between the houses and the trees on the right, show the rapid narrow channel of the Nile, that runs between you and Rhoda Island, where a succession of palm-groves and white palaces, with romantic-looking landing stairs, shaded by some drooping sycamore, strongly remind one of many scenes in the "Arabian Nights." In the other direction, the gigantic

tapering minarets of the new Mosque on the citadel constantly re-appear as you ride along.

But the street closes in again, and assumes a different character. Large walled gardens, within which one can occasionally distinguish corners or pinnacles of mysterious-looking houses embowered in trees; court-yards devoted to business, and containing huge mountains of grain or of chopped straw; boat builders' stations, and all the signs of a commercial place, soon begin to appear. And then you get into a bazaar or street of shops; and then into the market place, from near which the ferry-boats start for Gizeh and the Pyramids; and then into another bazaar, and to the neighbourhood of the Custom-house, where first this huge by-street makes a bend, and after going through a neighbourhood principally devoted to private houses and gardens, becomes at length a country road, leading out to the Attar-En-Nebbi or Prophets' Footstep.

What I have thus endeavored to describe, is almost the only aspect of old Cairo which visitors usually witness; and indeed there are many parts of the place which it is not easy to see, unless you go with a very positive determination to do so. If you turn off from the great street in any other direction but the real bazaar, you are instantly assailed by the information, generally vouchsafed by old women and children, that there is no thoroughfare; you turn, and twist, and wind, and generally come back to the place from which you started, after having passed through a variety of narrow lanes, and ventured into twenty blind alleys. The town, in fact, is divided into quarters, each with its separate gate, and each inhabited, no doubt, by a kind of class of people—the relics, probably, of the original population that settled here in the time of Amer-ibn-el-As, some twelve hundred years ago. It is

impossible to imagine anything more quiet than these quarters, without being dismal. For, although the light of the sun is generally shut out, yet here and there a few bright beams find their way down upon some carved projecting window, or into some little square, where perhaps a single palm-tree bends gracefully over, and throws a small patch of shadow upon some snug corner, where two or three children gracefully sit, and look in unfeigned astonishment at the intruder in another costume and of another faith.

The bazaar is in itself tolerably well stocked, although many shops are closed. A certain bustle prevails, because boatmen and country people often come there to buy; but the manners of the place seem a century behind those of Cairo. The dealers are more grave, and more impressed with the importance of their social position, and, without being in the slightest degree rude, evidently regard a Frank as an object of curiosity. There they sit, pipe in hand, calmly waiting for customers, generally in silence, sometimes talking with neighbours over the way; but all with a decent gravity quite delightful to behold.

There are a good many other things to see and notice in and about the strange old decayed city, as the fortified convent where the Chamber of the Virgin is shown; but the most curious object is the Mosque of Amer, that stands on the eastern side. I went one day to visit it, in company with a devout Arab. It stands almost alone amidst dusty mounds, and a few hovels. There is nothing very remarkable in its exterior appearance, which presents nothing but long, littering, dead walls. On entering the narrow gate, however, it is impossible not to be struck with the effect of an immense square court, surrounded by vast colonnades, with

plain round arches of simple grandeur. An octagonal building in the centre, containing a well, improves the general effect. We were first conducted to the Pillar of Purity—that is to say, two marble columns, placed so close together that only a spare man can squeeze through. In old times it was esteemed that none but good and true Moslems—and yet all of these—could pass between. When such a standard was chosen, not very long after the Prophet had promulgated his faith—few indeed, must have been the specimens of bulky orthodoxy, such as we have so often met with parading the streets, fluttering in their ample silk robes. At present, it is believed the columns are still a test of remarkable purity; and my corpulent companion sighed as he acknowledged the absolute impossibility of his succeeding in an attempt which was easy to me. A hideous old lady, who played the part of cicerone, repeatedly excited him to prove his freedom from sin; but even to ascend the steps would have been to him a difficult operation; and he sadly renounced all claim to be considered one of the "very righteous."

The old lady was a capital and original guide—not original, however, in her eagerness to hurry us from one point of interest to the other. She led us along the vast colonnades, telling us, with rare faith, that the true believers would be trampled under foot by the heathen whenever the most sacred Mosque fell into decay; and it really requires some such persuasion to excuse the tasteless reparations which have recently been made at various points. After permitting us to peep into a small cell containing the tomb of the founder of the Mosque, she took us through a perfect forest of columns to one particular one, up to which she ran, and, slapping it triumphantly, cried, "Look there!" She had evidently reached what, to her, was the most interesting spot

of the whole. I could at first see nothing at all remarkable; but, at closer examination, found that the column was slightly depressed, and stained with a greenish colour, and that there was a crack across it. I learned that the impression was caused by a slap from the hand of the Prophet himself; and the crack by a blow from his *Koorbash*. My companion, to whom I observed, that, as far as I knew, Mohammed had never been in Egypt, was a little puzzled and shaken in his faith, and he admitted that there were many suppositious relics; but, on reflection, his doubts were satisfied. "See," quoth he, "here is the proof you require; all the genuine marks of the Prophet are of a green colour; this stone is green; therefore—" The conclusion was irresistible; and I was told that the Great Rasail's Footstep in the Mosque to the south of Old Cairo is also green.

I have seen it somewhere remarked, that Moslems do not look with reverence upon antique monuments of their faith. This, however, is not so. I have never known greater respect paid to ancient buildings than is paid to their mosques by the Egyptians. It is true they despise every thing else that is old; and feel a pleasure in demolishing the relics of the unblessed Kafrs, who preceded them. In breaking them, they seem to feel all the pleasures of a contest with supernatural power; for they firmly believe that the huge stones with which the ancient piles that we respect are built, were not raised with human arms, but by the influence of spells and talismans. When, in spite of an opportunity, they refrain from destruction, it is in the belief that they may bring down the vengeance of accursed spirits upon themselves. It is another article of their faith, that the ruins contain hidden treasures, and so firm is their conviction, that every relic of ancient

times would have been long swept away, were there not a counteracting superstition that these treasures are protected by evil spirits. Near Shabour, on the Rosetta branch, I am told there is a huge stone, covering the entrance of a cave, supposed to contain incalculable riches; and that every night a magic cock is supposed to come out and chant, to draw attention to the fact; but it is also supposed that any one who should venture to remove the stone, would have his heart pecked out by the imaginary cock that protects the imaginary treasure. The wild fancy of the Arabs has adorned nearly every spot in their country with similar legends. Even the Mosque of Amer itself was once believed to contain immense wealth—or rather, *is* believed; for the disappointment of the searches is said to be the work of genii.

But, as I was saying, the Moslems do respect their ancient mosques; and, indeed, one of the chief features in the conversation of the devout, is the emission of various opinions on the ages of their places of public worship. Some of the fanciful, forgetting the recent existence of the Prophet, heap thousands on thousands of years with complacent fervour; but, generally speaking, the information current seems to be tolerably exact—more so than one would expect to be the case. I found that donkey-boys and boatmen agreed to give the Mosque of Amer twelve hundred and odd years (it was built in A. D. 639), and that the knowledge of the particular incidents connected with its foundation was not very incorrect. The old lady cicerone told us some long stories about the period at which various additions were made, and the generosity of people who gave up their houses to make room for the expanding Mosque. Among other things, she said that a Jewish lady of extraordinary beauty, built a house close to the

northern side, leaving only a narrow passage between. It was determined to throw back the colonnades in that direction, such room being wanted for the increasing crowd of worshippers; and, accordingly (property being held, it appears, on a different tenure then to what it is now), application was made to the lady to sell her house. She refused, and the improvement was delayed for a year, when its urgency increasing, a new demand produced a new and decided refusal. Then the Governor of Egypt, in a moment of passion ordered the house to be forcibly entered, and its owner expelled. She would not give up the point, but travelled all the way to Bagdad to lay her complaint before the Caliph. A simple statement was sufficient, and an order was immediately issued that the property should not only be restored, but a heavy indemnity paid. But the heart of the Jewish lady was touched by the eloquence of the Lord of the Faithful, or by divine interposition, and she suddenly, not only declared herself willing to give the house in dispute as a present, but embraced Islam, and—so the story goes—became one of the favorite wives of the Caliph himself. In the midst of much extravagance, there is often a hidden purpose in these Arab tales; and I am inclined to think this one was a correct mode of satirising the manner in which, of late years, Government has interfered with private property.

I went away much pleased with this my first visit to the Mosque of Old Cairo, and was glad to find that, in accordance with former experience in other places, every one about was quite tolerant in demeanour, and that the usual present, instead of being exacted with rudeness, was gently solicited, and received with gratitude. It must not be supposed, however, that we paid for admission to the Mosque. There the door stood open for us and

the winds to enter; but we made a voluntary donation, in accordance with the custom of a country in which charity degrades neither the giver nor the receiver. I tried to avoid drawing mental comparison with home; but could not help thinking that, at least in Egypt, places of public worship were *not* put on a level with theatres.

The "Mouth" of China.

TILL lately, the only entrance to the Celestial Empire vouchsafed to us Western barbarians, was the "Bogue," or mouth of the Canton river. Macao, Hong-Kong, and Canton were the only places Europeans were allowed to profane with their presence. The ship in which Madame Ida Pfeiffer, whose Voyage round the World we have before mentioned, was conveyed from Tahiti to this place, not being a Phantom Ship, only introduced her to those places. On the 9th of July, 1847, she cast anchor in the roads of Macao. A throng of Chinese, she tells us, speedily made their appearance on the deck of our ship, whilst others, without quitting their boats, offered for sale, fruit, cakes, and other articles—all very prettily arranged; in short, we were speedily surrounded by a sort of floating fair.

The captain ordered a boat to be got ready, and we eagerly went ashore. Each individual, on landing, was required to pay half a dollar to the mandarin—an exaction which I was informed would speedily be abolished. We proceeded to the house of the Portuguese merchants resident in Macao; and on our road thither, we passed through a great part of the town. Europeans, women as well as men, may freely travel the streets of Macao without fear of being stoned—a danger to which they are not unfrequently exposed in other Chinese towns. Those streets exclusively inhabited by Chinese, presented a very animated aspect. Groups of men, seated out of doors, were engaged in

playing at dominoes, whilst the occupants of the shops, carpenters, tailors, and shoemakers, were working, gossiping, or taking their meals. I saw but few women, and those few belonged to the lower class. I was greatly amused by the mode of eating practised by the Chinese. They use two pieces of stick, by the help of which they raise the food to their mouths, with extraordinary dexterity. When eating rice, the vessel containing it is raised to the widely-expanded mouth, into which the rice is thrown by help of one of the little sticks above mentioned. When partaking of dishes of a more fluid kind, they use round spoons made of porcelain.

The houses present nothing remarkable as to style of building. They are usually fronted by a court-yard or garden. I visited the Grotto in which the celebrated Camoens wrote some portion of his "Lusiad." The umbrage created by the satirical poem entitled "Disparates na India," caused Camoens to be banished to Macao, where he remained in exile for several years. The Grotto is built on a little eminence at a short distance from the town.

Our captain finding that he could not transact the business he expected to do in Macao, proposed to sail on the following morning; and he kindly invited me to make the trip to Hong-Kong, though I had engaged my passage only as far as Macao. I very gladly accepted his invitation.

On the morning of the 10th of July, we sailed for Hong-Kong, which is about sixty nautical miles from Macao. The voyage from the one place to the other is varied and interesting. We were continually in sight of picturesque bays and groups of islands. Hong-Kong was ceded to the English by the Chinese after the peace in 1842. The sea-port town, called Victoria, built by the English, contains many handsome stone edifices.

The Europeans, of whom there are only a few hundreds here, are somewhat dissatisfied, trade not being so prosperous as was at first expected. The English Government gratuitously gives portions of land to merchants, on condition of their building houses. Many have erected on these grants of land large houses, which they would willingly sell for half the price they have cost. Victoria is surrounded by barren hills, or not very pleasingly situated. The town has altogether a European character; and, but for the Chinese porters, labourers, hucksters, &c., seen in the streets and in shops, it would be difficult to imagine one's-self on Chinese ground. I was a little surprised at not seeing any native women in the streets; from which circumstance it might have been inferred that a European female could not safely have ventured out of doors alone. However, I never met with the least insult or annoyance on the part of the Chinese; even their curiosity was not offensively manifested.

In Victoria I had the pleasure of being introduced to the celebrated Gutzlaff. Four other German missionaries were also residing there. They were dressed in the Chinese style; had their heads shaved, and the back hair plaited in long tails, in the style worn by the natives. These missionaries were studying the Chinese language, which is exceedingly difficult, both to speak and to write. The written language consists of characters, of which there are upwards of four thousand; and the spoken language is composed of pure monosyllabic sounds. The Chinese write with pencils dipped in Indian ink; their lines run from right to left, and from the top of the paper downward.

After the lapse of a few days, I met with an opportunity of going to Canton on board of a Chinese junk. Mr. P., a merchant residing at Victoria, who had received me very kindly,

recommended me not to venture in the junk alone, as he assured me the Chinese people were not to be trusted. He advised me either to take a boat for myself, or to engage a berth on board one of the steamers; but these modes of travelling were too expensive for the limited means at my disposal. A place in the steamer, or a hired boat, would have cost twelve dollars; whilst the fare by the junk was only three. However, I must confess that I saw nothing either in the looks or conduct of the Chinese to excite alarm. "I put my pistols in order—(continues the fearless lady)—and, on the 12th of July, I went on board the junk."

As evening drew in, heavy rain obliged me to return to the covered part of the vessel, where I amused myself by observing my Chinese companions.

The party on board the junk, though not the most select, was nevertheless perfectly decorous in demeanor. Some of the men were seated at dominoes, others were listening to the performance of a musician, who drew forth doleful strains from a sort of mandoline with three strings. A few were gossiping; a great many smoking; and all, by turns, drank unsugared tea. Of this beverage, which was served in small cups, I was civilly invited to partake. The Chinese of all ranks and classes, rich and poor, drink neither pure water nor fermented liquors. Weak tea, without sugar, is their constant beverage.

Late in the evening I retired to my cabin, where, to my discomfort, I found the rain dripping through the roof. The captain, on being apprised of this fact, immediately accommodated me with another berth, where I found myself in company with two Chinese women. When I entered the cabin they were completely enveloped in a cloud of tobacco-smoke, which they were puffing from small pipes, no larger than thimbles.

My companions, observing that I was unprovided with the head-stool, which in China is used instead of a pillow, kindly offered me one of theirs; and the offer was so urgently pressed that I felt myself obliged to accept it. These head-stools are made of bamboo, or of a very thick kind of pasteboard. They are about eight inches high, and from one to three feet long, rounded at top, and have no stuffing. The head rests more comfortably than might be expected on one of these stools.

Early next morning I hurried on deck to see the entrance to the mouth of the Si-kiang or Tiger River; but we had advanced so far up, that no trace of the mouth was discernible. I, however, saw it subsequently, when I returned from Canton to Hong-Kong. The Si-kiang is one of the largest rivers in China. At a very short distance from the point at which it falls into the sea, it is nearly eight nautical miles in width; but at its mouth it is so contracted by rocks that it is only about half that breadth. The views along the banks are pleasing; and some fortifications erected on the heights give a romantic character to the scenery.

At Hoo-man (which place also bears the name of Whampoa) the river branches into several separate streams. One which flows up to Canton is called the Pearl River. Its banks are lined with extensive rice plantations, amidst which bananas and other trees are planted, in rows; the intervening spaces forming pleasant avenues. But these trees are intended less for ornament than for use. Rice requires a very damp soil, and the trees are planted with the view of giving the earth a certain degree of consistency, and preventing the rice from being washed away by the copious irrigation which the soil demands. Neat little Chinese country houses, with pointed and notched roofs, and walls profusely adorned with coloured tiles and clay ornaments, are

seen nestling amid groups of shady trees; and pagodas—or *tas*, as they are called by the Chinese—varying from three to nine stories in height, stand on hills in the vicinity of the villages, and from a vast distance attract the eye of the traveller. The river is defended along its banks by numerous fortified posts.

Some miles below Canton, we passed a succession of poor looking villages, for the most part consisting of huts built on piles driven into the bed of the river; numerous boats floating in the stream, also served as habitations for their owners.

As we drew near to Canton, the aspect of the river became more and more animated, and the number of boats of every description augmented. There were vessels of the most extraordinary forms. Some of the junks, two tiers above water at the stern, looked like houses with high balconied windows. Many of these junks are exceedingly large, and they are not unfrequently of a thousand tons burthen. I saw several Chinese ships of war, of a flat and long build, and carrying from twenty to thirty guns. The mandarins' boats, with doors and windows painted on the outside, are like neat little houses decorated with silk flags. But above all, I admired the flower-boats, with their upper galleries adorned with garlands, arabesques, and other ornaments. The windows and doors of these flower-boats are somewhat in the gothic style; the doors lead to the interior of the boat, which consists of one large saloon, and a few small cabins. Mirrors and silken tapestry adorn the walls; crystal lustres, and coloured paper lamps, between which are suspended pretty little baskets filled with fresh flowers, serve to complete a picture which, to European eyes, presents an almost magical effect.

These flower-boats, which constantly lie at anchor in the river, are places of entertainment to which the Chinese resort both by

day and by night. The amusements consist of dramatic performances, jugglery, and dancing. No females, save those of a depraved class, visit these places. Europeans are not prohibited from entering them; yet, the present hostile state of feeling on the part of the Chinese, exposes them to the chance of insult, and, possibly, of ill-treatment.

The bustle and movement on the river is still further augmented by thousands of very small boats, called shampans; some lying at anchor, and others floating about among the large vessels and flower-boats. Meanwhile, fishermen are seen in all directions casting their nets; and children and grown persons are bathing and swimming. It is frightful to see the young children in the small shampans. They are suffered to play and swing on the edges of these boats and they are every moment in danger of falling overboard. Careful parents adopt the precaution of fastening hollow gourds, or bladders inflated with air, on the shoulders of very young children, to save them from immediately sinking when they fall into the water—an accident of continual occurrence.

In short, the varied objects and strange manners; the active life and movement observable on the Pearl River, altogether make up a picture of the singularity of which description can convey no adequate idea.

During the last few years, European women have been permitted to enter the factories of Canton, and even to reside within them. I consequently left the junk without hesitation; but having landed, I had to find my way to the residence of Mr. Agassiz, to whom I had been directed, and as I could not speak a word of Chinese, I was obliged to have recourse to signs. I made the captain of the junk understand that I had no money with me, and that he must conduct me to the factory, where I

would pay him. He readily understood me, and escorted me to the place I wished to go to. When Mr. Agassiz saw me and learned how I had travelled,—above all, when he was informed that I had walked from the junk to his house, he was very much astonished that I had escaped so fortunately. I now, for the first time, became aware that it is very hazardous for a woman to walk through the streets of Canton unaccompanied by any one but a Chinese guide. It is quite an unheard-of thing: and I was assured that I might consider myself very lucky in having escaped being insulted, and even stoned, by the people. On my way from the junk to the factory, I observed the people staring at me, calling after me; and, by degrees, they ran out of the shops and houses, thus forming a crowd which followed us. However, I walked on fearlessly; and possibly my safety was due to the fact of my having manifested no symptoms of alarm. I was not disposed to stay very long in Canton; for since the last war between the English and the Chinese, the place has become more than ever insecure to Europeans. To European women especially, a strong dislike is manifested; because, according to a Chinese prophesy, the Celestial Empire will one day or other be conquered by a woman. The plan I had laid down was to direct my course to the north of China, to the port of Tschang-hai, where I was assured I might, with comparative ease, enter into communion with the people.

I was, however, induced to change my plan. By good fortune, I formed acquaintance with Herr Von Carlowitz, a German, who had resided for many years in Canton. He kindly offered to act the part of my Mentor; and to his courtesy I am indebted for having seen more of China than any other European woman ever saw.

Our first excursion was to the famous Temple of Honan, accounted the most beautiful in China. The temple and its surrounding gardens are enclosed by a lofty wall. We first entered a spacious outer court, at the further end of which a colossal portal led into an inner court. Beneath the arch of this portal there were two figures of War-Gods, each eighteen feet in height, and exceedingly fierce in attitude and aspect. Their presence is supposed to guard the entrance against evil spirits. A second portal of the same kind, beneath which were figures of the four Celestial Kings, leads to the third, or innermost, court, in which the Grand Temple is situated. The interior of this temple is about a hundred feet square. The flat roof, whence are suspended a multitude of glass lustres, lamps, artificial flowers, and coloured silk flags, is supported by a range of wooden pillars. Numerous images, altars, vessels filled with flowers and incense, candelabra, wax-tapers, &c., give to the decorations of this temple some resemblance to those of a Catholic church. Near the entrance there are three altars, and behind them three statues, representing the god Buddha in three different ways; allegorically personifying the Past, the Present, and the Future. The figures are of colossal proportions, and in sitting attitudes.

It happened that service was being performed in the Temple, at the moment when we entered. It was a sort of mass for the dead, which a mandarin had commanded for his deceased wives. At the two side altars there were officiating priests, whose garments, as well as the ceremonies they were performing, resembled those of the Catholic Church. At the centre altar was the mandarin devoutly engaged in prayer, whilst two attendants were fanning him. He frequently kissed the ground, and every time he performed this ceremony, three perfumed tapers were pre-

sented to him. Holding these in his hands, he raised them up as high as he could reach, and then gave them to a priest, who placed them before one of the statues of Buddha, but without lighting them. The musical part of the service was performed by three men; one strummed on a stringed instrument, another struck a metal ball, and the third played a sort of flute.

Besides this principal temple, there are several minor temples and halls, all decorated with images of gods. One of the smaller temples is held in especial veneration. It contains twenty-four images of the deity who is supposed to preside over mercy. Some of these images have six and others eight arms. All the gods, Buddha included, are carved in wood, gilt, and painted in a variety of tawdry colours.

Our guide next conducted us to the sanctuary of the Holy Swine—for the animal which the Mahomedan holds in utter detestation, the Chinese deifies. The interior chiefly consists of a handsome stone hall; and though some care is taken to keep it clean, it does not smell much more agreeably than pigstyes in general. The holy swine are so watchfully tended and abundantly fed, that they are usually killed with kindness and die a premature death. At the time of my visit, the sanctuary contained only one happy pair; and I was informed that there are seldom more than six of the animals living at a time.

Adjoining the Temple of the Sacred Swine was the dwelling-place of one of the Bonzes or priests. It consisted of a sitting-room and sleeping apartment, very neatly fitted up. The walls of the sitting-room were ornamented with wood carving, and the furniture was very elegant and curious. In the dwelling of the Bonze we saw an opium-smoker. He was lying on the ground stretched on a mat, and beside him he had a cup of tea, some

fruit, a lamp, and several very small pipes, through one of which he was inhaling the inebriating vapour. Not being in a state of total unconsciousness when we entered, he arose slowly, laid aside his pipe, and crawled to a seat. His eyes were fixed, and a death-like pallor pervaded his countenance. He was altogether a most miserable-looking creature.

We were next conducted to the garden in which the remains of the Bonzes are burned after death—an honour accorded exclusively to them, the remains of other persons being merely buried. Our attention was directed to a simple mausoleum, about thirty feet square, in which the bones of the Bonzes are preserved after the rest of their bodies has been consumed by fire. At a little distance from the mausoleum stands a tower built of stone, about eight feet in diameter, and eighteen in height. On the floor within the tower there is a small hollow, in which a fire is kindled, and the body of the dead Bonze, dressed in full costume, and seated in an arm-chair, is placed over this fire to be burned. Round about it are laid wood and dry rice, and when the whole begins to blaze up, the door of the Tower is closed. After the lapse of an hour, it is again opened, when the ashes are scattered round the Tower. The bones of the Bonze are left undisturbed for a year, after which time they are collected and deposited in the mausoleum. Another remarkable object in this garden is the beautiful water-rose, or Lotus flower (*Nymphæa Nelumbo*,) which properly claims China as its native land. The Chinese are so fond of this flower, that for the sake of rearing it, they have a pond in almost every garden. The flower measures about six inches in diameter. It is white, but sometimes, though very seldom, of a pale pink hue. The seeds resemble in size and taste those of the hazel-nut; the roots, when cooked, are said to have

the flavour of artichokes. Upwards of a hundred Bonzes live in the Temple of Honan. Their ordinary dress differs in no way from that worn by other Chinese, from whom they are distinguished only by having their heads completely shaved.

I made a visit to the Half-Way Pagoda, so named by the English because it is situated half-way between Canton and Whampoa. We went by a boat up the Pearl River. The Pagoda stands on a mound of earth, in the vicinity of a village, and is surrounded by immense rice fields. It has nine stories, and is one hundred and seventy feet high. Its circumference is not very considerable, and does not materially diminish from the lower part upwards. This pagoda is one of the most celebrated in China; but it has long ceased to be used. The interior was totally dismantled; no trace of images or any other ornaments remaining. There is no flooring between the different stories, so that when looking upwards from the ground in the interior, the eye uninterruptedly scans the pointed summit of the structure. On the outside, each story is marked by a small gallery without balustrades. These galleries are reached by steep flights of steps, and are extremely difficult of access. They are curiously inlaid with coloured tiles, placed lozenge-wise, one over another, the point of each tile projecting about four inches beyond the one below it. When viewed from a distance, this appears like some kind of open work; and from the brilliant hues and delicate fabric of the tiles the whole might be mistaken for a mass of porcelain.

Whilst we were viewing the pagoda, some of the people from the neighbouring village collected around us, and, as they seemed to be very harmless and peaceable, we thought we might venture to take a peep at them in their own little settlement. Accord-

ingly, we wended our way to the village. It consisted of a cluster of small houses, or rather huts, built of brick, and externally presenting no peculiarity except their flat roofs. The rooms had no ceiling—the external roof of the house serving for that purpose; the flooring was of stamped earth, and bamboo mats formed the partition walls between the rooms. These houses contained but few articles of furniture, and were exceedingly dirty. In the middle of the village there were several small temples, and before the image of the principal deity dingy lamps were lighted. I was much struck by the vast quantity of poultry collected in front of all the huts. The chickens were so numerous that it was difficult to avoid trampling on them as we passed along. Here, as in Egypt, hatching is effected by artificial heat.

I had long been desirous of seeing the celebrated wall of the city of Canton, and, by good luck, I was enabled to surmount the obstacles which seemed to render the gratification of this wish impossible. Herr Von Carlowitz engaged a missionary to accompany us on this expedition. Missionaries, I may mention, are the best possible escorts and guides for travellers in China. They speak the language of the country, make friendly acquaintance with the people, and, in consequence, enjoy the privilege of going about without danger or interruption. The good missionary whom Herr Von Carlowitz had engaged, expressed his readiness to escort us on the wished-for excursion, on condition that I would disguise myself in male attire. Hitherto, no woman had ventured on the expedition, and I was assured that even I, who had ventured so much, could not undertake it with safety. I speedily provided myself with the requisite disguise, and thus equipped, set out early one morning.

We walked a long way through narrow streets, paved with broad stones. In front of every house we observed a niche, within which there was a little altar two or three feet in height; and as it was not yet broad day, the night lamps were still alight. This lamp-burning rite of the Chinese religion must occasion an inconceivable consumption of oil. Gradually the shops began to be opened. They were merely little square rooms, without front walls. The goods were displayed partly in open drawers, and partly on tables, behind which the shopkeepers usually sat, engaged at their work. From one corner of the shop a narrow flight of steps leads to the upper part of the house, which is the dwelling-place of the family.

Here, as in the cities of Turkey, particular streets are appropriated to particular trades and professions; one is occupied exclusively by glass-venders, another by silk-mercers, and so on. In one of the streets of Canton, in which all the doctors reside, the only shops are those of apothecaries; for in China the functions of physician and apothecary are exercised by one and the same individual. The shops in which provisions are sold are very elegantly arranged; and these are all in one street. Between the houses there are frequently small temples, which no way differ in style from the adjoining buildings. The gods are confined to the lower stories of these temples; and all the space above is appropriated to the use of mortals.

As the day advanced, I found the streets exceedingly crowded and busy, especially those containing the shops in which provisions were sold. Women and young girls of the lower class were hurrying to and fro, making their marketings, much in the same way as in the cities of Europe. They were all unveiled, and many of them waddled like ducks; for the practice of crip-

pling female feet is not exclusively confined to the higher ranks of society. The crowd and confusion were not a little augmented by men carrying on their shoulders large baskets filled with provisions; in loud voices, they alternately crying the articles they offered for sale; and shouting to the people who thronged the streets. Every now and then a palanquin, bearing one of the wealthy Chinese traders to his place of business, would work its way into a narrow lane, checking the course of the living tide that poured through it, and completely blocking up the thoroughfare.

All these narrow streets or lanes are situated close to the city wall, upon which many of them abut. Along the wall there are many little doors or gates leading into the interior of the city. These gates are closed in the evening, and at all times foreigners are strictly prohibited from passing through them. If, as it frequently happens, an unlucky foreign sailor, in the course of an idle stroll, unwittingly passes through one of these forbidden gates, a volley of stones, directed upon him from all quarters, is the first intimation he receives of his mistake.

After we had walked about two miles through the labyrinth of narrow streets, we came in sight of the celebrated wall. It is about sixty feet high, and in most parts covered with grass, moss, creeping plants, and other kinds of vegetation; so that it has the appearance of a garden wall. From the summit of a little neighbouring hill, we obtained a fine view over the city. It was a mere chaos of small houses, between most of which stood a single tree. We discerned no fine streets or squares; no temples, or handsome buildings of any kind. A single pagoda, five stories high, was the only object that reminded us we were surveying a Chinese city.

Our homeward course lay across fertile uplands, and well-cultivated meadows and fields. Many of the hills are cemeteries, and are thickly scattered over with graves, marked by little heaps of earth, and tombstones about two feet high. Some of these stones were nearly covered with inscriptions. Here and there were family tombs, consisting of large graves surrounded by walls in the form of a horse-shoe. The Chinese do not inter all their dead. They have another very peculiar mode of burial, which consists in depositing the corpse in tombs of masonry. These tombs have two walls and a roof, the unwalled sides being left open. They contain two or three, and sometimes as many as four coffins, which rest on wooden benches. The coffins are made of trunks of trees hollowed out.

The little villages or hamlets through which we passed were marked by poverty and dirtiness. In all of them I observed vast numbers of poultry and pigs; but in the course of the whole excursion I saw only two horses and a buffalo. These animals were of a very small species.

When near our journey's end, we met a funeral. Its approach was announced by strains of dismal music; and we had scarcely time to look about us and to get out of the way, when the procession advanced almost at a running pace. First came the musicians, followed by a few Chinese (probably relatives of the deceased); next were two empty palanquins, followed by the coffin, formed of the hollowed stem of a tree. It was slung on a pole, and carried by bearers. The procession was closed by a few priests and a long train of people, who followed from mere idle curiosity.

The high priest wore a white head-dress, with a triple point, looking not unlike three fool's caps fastened together. The

mourners (who are all men) wore a piece of white cloth, either tied round the arm or wound round the head. White is the colour worn by the Chinese for mourning. They are particularly sensitive respecting death, and direct allusion to it in conversation is considered highly indecorous. When they speak of a funeral, they call it a "white affair."

Lost in London.

THE following are extracts from the manuscript of a German gentleman of education, who fled from hopeless poverty, occasioned by political persecution at home, to endure poverty, with hope of better days, in London. He landed at Blackwall on a cold morning, in December, 1846, with a small spare body, a nearly empty purse, and a carpet bag. His hope was that he might earn bread by translating German works, and he had a fancy that he would begin with Hegel; he was prepared also to labor in original composition as an English writer. That he can write English well, our extracts from his autobiographical sketch testify.

In the waiting-room at the Custom House he was abashed by a party of neat gentlemen and ladies. Their clothes were clean, he says, and mine had not felt a brush since I got into the railway train at Cologne. Their hair was very short, wiry, and prim, while mine was long and dishevelled. Their cravats were as stiff as they were high, and I had the assurance to wear my shirt-collar turned down. There was something exceedingly painful to me in the sneering curiosity with which I was surveyed. I left the room.

I had scarcely gone out on the quay, when a dirty man, with large whiskers, came shuffling up, and addressed me in German. He asked me whether I had come with the boat from Rotterdam? and on my saying, "No," he wished to be informed what hotel I had fixed upon. I knew of the touters for the low inns, who lie

in ambush about the London wharfs to entice strangers, and particularly foreigners, into their lairs. But what had I to fear? I was no prey for thieves. My falling in with a touter was somewhat fortunate. A home was at once recommeded to me, of which my whiskered countryman, with the dirty face, informed me he was the proprietor. He called it "fatherland in the midst of London."

After a short palaver, we agreed to his proposal, that I should pay him for my board and lodging at the rate of half-a-crown per diem. This, he said, was the usual sum; but I found afterwards that I paid a shilling more than he was in the habit of receiving. I was, however, well pleased with my bargain. As for him, he seemed in such conceit with his new customer, that he would not leave me for a single moment alone, for fear I should make my escape or lose my way.

I was very cold and felt feverishly impatient to change my dress, wash my face, and brush my hair. I looked, consequently, with great eagerness towards the "fatherland in the heart of London." Besides I had not yet breakfasted; and when Mr. Wernstuk (such was the whiskered man's name) proposed to go to a public-house on the wharf, I readily accompanied him, and was forthwith led into a large room, where an enormous fire was drying the smock-frocks of above a hundred coalheavers, draymen, and porters, who sat on black benches, drinking ale, and eating cheese. They all smoked clay pipes, and seemed greatly to enjoy their bad tobacco. My landlord dragged me to a table at the further end of the room, where he told me to sit down by the side of a pale woman, whose dress and long braids, escaping from under a skullcap embroidered with beads, plainly bespoke her as one of my fair countrywomen. While the landlord, who appeared

an *habitué* of the place, bustled off to get some refreshment at the bar, I entered into a conversation with the poor woman, who seemed quite bewildered by the surrounding uproar. She said she and her husband had but that morning arrived from Rotterdam, and that they had been at once secured and carried off by Mr. Wernstuk. The last-named person returning with a dish of cold beef, and sundry pots and glasses, put the beef before me, and bade me take especial care of the blunt knife and iron fork which he placed into my hands—for he had become bail for them at the bar. While I was engaged in conquering the toughness of the meat, I understood that knives and forks being continually stolen by the hunters of this place, every guest was bound to go to the bar and return those articles when done with.

The noise and the smell of the room were too powerful; and declaring my intention to se out by myself on a voyage of discovery for Mr. Wernstuk's hotel, I returned the knife and fork to that gentleman, who loudly predicted I was sure of falling into the jaws of other sharks, and who seemed half-agonised at the idea of a certain rival house in Leman Street, which he told me was worse than a murderer's den. But neither his curses nor his prayers could prevail with me. I merely stayed to inquire for the situation and number of his house in Wellclose Square, took my carpet-bag, and a few moments afterwards I alighted at the Fenchurch Street Station of the Blackwall Railway.

The men whom I saw in Rosemary Lane, as I passed through it on my way to Wellclose Square, seemed to be almost all Jews, anxious to sell me coats, or buy my carpet-bag; and the women, many of whom peered out from little windows that were almost on a level with the pavement, were gross in their language, and licentious in their manners. Some of them were assembled in

small knots in the streets, so that I found difficulty in passing along. But soon I found an object of a more formidable nature in my way in the shape of a woman, whose size and evident strength of limb, joined to a certain swaggering deportment, bespoke her a heroine of rows. This woman, who had watched my progress up the street, separated from some of her companions, and placed herself in my way. There was something in her manner which made me sure she would speak to me, and be angry at any answer I might give; but, for all that, I could not avoid her. I might have crossed the road, but that would have betrayed the fear which I confess I felt; and I therefore walked boldly up to her, and in a polite tone addressing her as "Madam," asked her for the direct way to Wellclose Square.

My stratagem succeeded. The woman was not accustomed to politeness; she seemed half confused, and immediately began to describe the route I was to take. There was evidently some better feeling in her, which made her feel flattered at being mistaken for what she was not, but perhaps had been. She accompanied me almost to the end of the lane. In the course of my progress through this neighbourhood, I remarked that all the inhabitants looked squalid. The very air seemed full of pestilential matter; I felt cold shudders, and my breath came short. I thought of the "cittá dolente" of Dante. Wellclose Square appeared very quiet; no human being met my eye, when I first entered it; no face appeared at the windows. It was indeed the quiet of a churchyard.

My knock at the door of Mr. Wernstuk's house, to which I had been directed, was speedily answered by a rakish-looking young man, in shirt-sleeves, wirh a scarlet Calpac on his head. Evidently astonished at the appearance of a guest whose deportment

differed from what he was accustomed to see in this place, he seemed unable to comprehend my request for accommodation. It was not until I showed him the card which the landlord had given me, that he opened the door and led me into the parlor. The room was dirty, cold, and damp. A low fire burned in a desolate looking grate; the hearth was full of cinders, and the leavings of a late and disorderly breakfast stood upon the table. Music, wearing apparel, and sundry stone bottles, strewed the floor. A powerful, square-built fellow, in a Flushing jacket with brass buttons, forced an unmelodious twang from the three remaining strings of an old guitar.

There was no one else in the room; but on the violent shouts of the man in the Calpac, a negligently-dressed woman ascended from some place below. Her features were haggard, and bore an expression of habitual ill-humour; such as bad health, fatigue, and hopelessness stamp on the face. The sharp cough which accompanied the first words she spoke, told her history at once. She was fast sinking under the attacks of consumption.

Surveying me with an air in which kindness struggled with vexation, she said, after a few explanatory remarks from my introducer, "Did my husband indeed send you here, mein Herr?" And when I said, "Yes;" she continued, "I think Wernstuk is mad. He brags about his house, and his hotel, and his accommodation; whereas you may now see with your own eyes whether a place like this is fit for such as you. Wernstuk is mad!"

"Not so mad as you think, my good woman," said I. "At least not in the present case. What his accommodation is, I know not; but his prices suit me excellently. Therefore, let the door be shut, and stir the fire, for it is very cold."

"Ja, ja, mein Herr!" said the man in the Flushing coat with

a broad Westphalian accent; and he betook himself eagerly to obey my commands, while his companion—whom the landlady called Tillmans—placed a chair close to the fender, and asked me to sit down on it. "Since you insist on remaining here," added he, "we will at least do all we can to make you comfortable."

But I asked to be forthwith shown to a room where I might wash and dress. The man in the Flushing coat looked astonished, and the pale features of the landlady bore an expression of blank dismay. She hesitated for some moments, and then explained to me that there was no room in the house but this, in which a fire was kept, and that to wash and undress in any other room would give me my death of cold. We were interrupted by a violent knocking at the street door, which being opened, admitted the landlord, the pale woman, and half-a-dozen men, who were evidently the worse for liquor, and who would have been the better for some water and soap. Their entrance was the signal for a scene of confusion, which lasted until the appearance of the landlord; who, with a huge dish full of hot potatoes, gave the signal for dinner.

A dozen eager hands were at once in motion to assist him. The table, which still bore the traces of the last meals, was covered with a coarse cloth; Louis, the waiter, emptied a basket of tin spoons, knives, and iron forks, on the table; and while the man in the Flushing jacket, armed with a large knife, prepared to act as carver, by stripping himself of his upper garment and tucking up the sleeves of his shirt, the company arranged themselves round the table, and made an unceremonious attack on the provisions, which consisted of cold beef, boiled mutton, sausages, and the hot potatoes. The appetite with which the company ate was truly edifying, and the pauses of the meal were duly filled with

laughter, disputing, and swearing. Each guest seemed eager to impress all others with his great proficiency in London life.

Coffee was brought in after dinner, and the men, scarcely any of whom had as yet found employment in their respective trades, produced large pipes, and fell with great vehemence to smoking and disputing; while the landlady and the pale woman, with the embroidered skullcap, sat down in a further corner of the room.

Presently, a man in rusty black entered with a boisterous air, which was evidently assumed for the purpose of conciliating the good-will of the landlord, who at once welcomed the new-comer. "You are just in the nick of time, Mr. Speellman," said he. "There is foreign money in the house."

"Great demand for sovereigns, eh?" said Mr. Speellman. "Well and good. I have brought gold and silver, and give as much for a dollar, or florin, as any man in the trade."

"Gentlemen and ladies!" cried the landlord. "You hear what Mr. Speellman says. He is ready to change whatever coins you may have in your pockets; for you must know your Prussian, or Bavarian, or Badenish money could not buy you a penny roll in a shop." Some of the guests broke out in exclamations of surprise, and hastened to the table. Mr. Speellman produced a large leather bag full of English money, and did, what he called, "a little business," with every one. The man in the Calpac and the wearer of the Flushing coat, alone, had no money to change. The money-changer was just about to go, when he saw the latter, who looked at him with a grave face.

"Ah, Braun!" said he, "I have not yet found anything for you. Bad time for farriers now. Winter—no horses in town.—Schmidt, I say, what are you doing here? Why are you not at your work in Whitechapel?"

"Because some one has knocked a nail into my cask, and I've run that nail into my foot."

"Some one has knocked a nail into your cask!" said I. "What do you mean?"

"Why," said he, turning to me while the money-changer left the room, "I am a carpenter by trade; but finding no work, I engaged myself with a fellow in Whitechapel to 'cure' skins. I have done it now a fortnight, but some one who wished for my place disabled me by knocking a nail into my cask."

I could not make out his meaning.

"I had to get up at three in the morning," he explained; "I undressed, and then went into a cask with hair-skins, which I had to stamp upon all day long. If I continued that work till seven or eight in the evening, I could earn about a shilling a day; just enough to keep me alive."

"And were you tricked out of so miserable an employment?"

"Certainly. There are dozens who wait for one of the workmen to fall ill; and, if they have to wait long, they make him fall ill by secretly disabling him. Every one has his place so long as he can keep it. They are all Germans who work there, and many of them are clever in their trades; but they cannot find other employment."

This afforded me food for reflection. What a market is London to bring one's labour to!

A sudden stillness in the room interrupted the train of my thoughts. I looked up and found that almost all the guests were gone to see something of the town. Mrs. Wernstuk sat on a wooden chair close to me, and coughed violently. "That is a bad cough, which you have," said I; "have you long suffered from it?" "No, not very long," said the poor woman; "it has

come on gradually, and is very bad just now. I had the typhus fever in the spring; it was my first illness, and it was dreadful. I was out of my mind, Lord knows how long, and when my senses came back, I could not walk from sheer weakness. The doctor sent me to Gravesend, where I remained three weeks. I wish I could go there again, I was very happy at Gravesend." "Are you less happy here?" said I. "I am very miserable. You see the house is dirty. I cannot clean it. The scrubbing and washing it is my death. I find difficulty in mounting the stairs. I have always a mind to lie down and sleep. My husband abuses me; he says it is my laziness. But it is the disease; I feel it. Here," she pressed her hand on her breast, "is a spot which burns like fire. It makes me cough."

I knew the poor woman spoke the truth, and that death was at her heart. She sat there for a long time coughing, and telling me of her father's farm between Duren and Stolberg; of the rich green meadows and the wild forests; of the Corpus Christi processions, when she and her maiden-friends crowned the rustic altar with flowers; and of the merry Kirmesses on the Rhine, where she had danced. She said she had been so fond of dancing, and that she had often danced all through the short starry summer nights, and walked home after sunrise, when the dew was on the deep grass, and the birds were in the air.

But I had to attend to my own affairs. I had no friends in England. There was one man, however, to whom a mutual friend had consigned my fate and fortunes. He was at Brighton. To Brighton I consequently resolved to go, after I had first informed him of my arrival in London. I called for writing materials, indited a letter, and hastened to bed, before the wilder part of the inmates of the house returned from their experiment

on London life. The bedroom to which I was shown, though at the top of the house, was wet and cold as a cellar. The plaster of the unpapered walls was, in many places, broken; and the floor looked as if it had but just been washed. Fancying this to be the case, I was angry at this unseasonable attempt at cleanliness; but, when I awoke next morning, I found that this was the usual condition of the floor. It was always wet. The beds in the room were arranged ship-fashion—one standing upon the other; so that the room, which was very small, might be made to contain three persons, or, if necessity required it, six.

I chose the topmost bed, for I thought there I was safest if the "fittings" should break; and I kept my clothes on, for I found on examination, that the straw over which the sheets lay, and the sheets themselves, and the blankets were very damp. I thought my bed would give me rheumatism, and with this thought I fell asleep. When I awoke in the morning I was chilled and sick. I found that I had shared the room with an Italian Swiss, who was about to go to Buenos Ayres.

Descending to the common room, I found all busy at breakfast. A Dutchman, with the complexion of a bad tallow candle, treated the company to potted salmon, schiedam, strong cigars, and other delicacies. The wild young men who, the evening before, had gone to see the town, were elated with the night's adventures. They spoke highly of a certain house of public resort in "Dog Street." Mr. Wernstuk, the landlord, was noisier, and his whiskers were, if possible, more shaggy than the day before. His wife still complained of her illness. She said her cough had been very "trying" during the night.

After breakfast, I set off for Brighton, where I had an interview with Mr. Vitriol, the author, to whom I had been recom-

mended. I had been assured I could confide in Mr. Vitriol, and I gave plain and candid answers to the searching cross-questions about my prospects with which he assailed me. I told him my plans and intentions; nor did I conceal from him that it was of vital importance to me to be at once employed. He drew his eyebrows up, and the corners of his mouth down, and said it would not do. He exclaimed at the crowds of Englishmen who wanted literary engagements, and mentioned the number of applications he had received within the last month. "I believe it," said I. "But those people had not the good fortune to be particularly recommended to Mr. Vitriol." He smiled, but grimly, and plied me with new questions. He made me confess that I was almost penniless, and that my sole resource, at present, was my pen. He condemned me for having come to England, spicing his condemnation with a little blasphemy. I was resolved to suffer all, rather than offend him; for he seemed desirous of taking offence; so I merely replied that I had told him of my misfortunes, and that I had come to England because poverty in a foreign country seemed preferable to poverty at home, where people knew me. I entreated him to look at some of my productions. He had no time. Besides, it was useless. A foreigner could never write English. I asked him to try me but once; but he said again it would not do. I might still have spoken, I might have said many things; but there was something in Mr. Vitriol's manner which crushed me. I felt my spirit broken.

I was obliged to accept the bed which Mr. Vitriol offered me in his house. That night was dreadful. Mr. Vitriol said in the morning he would think about my case, and asked me meanwhile to stay in his house. I had no choice, and accepted. Mrs. Vitriol, his wife, seemed afraid of me; not because I am a very

formidable person, but because I was poor. To relieve her of my presence, and myself of the awkwardness of continually repeating my name to her, which she could not remember, I walked about Brighton all day, and felt miserable when I saw people meet and shake hands. It made me feel my loneliness. Next morning Mr. Vitriol sent me to London. I was but too happy to go. Indeed I would have gone the day before, had I not feared to give him occasion to be offended. He said my circumstances were such, that I must be at once employed. He would give me a letter of introduction to a friend of his, whose literary career he had fostered. That friend should take cheap lodgings for me, and I should write to give him my address. He would then send me letters of recommendation to publishers and authors; in fact he said all he could say to send me off easy. I understood afterwards that his wife had persuaded him to give me some hope, lest despair should drive me to commit suicide in his house; a circumstance which would have unpleasantly disturbed their domestic arrangements.

It was about seven in the evening when I knocked at the door of the house in Soho, where Mr. Pebble, the man to whom Mr. Vitriol had addressed me, lived. I had promised Mr. Vitriol to deliver the letter that very night; for it contained some information which it was important Mr. Pebble should have at once, and Mr. Pebble should assist me in finding cheap lodgings, because I was "hard up." There is at times something soothing in a cant phrase; it takes the sting off a humiliating position by making it familiar. The woman who answered my knock told me Mr. Pebble was out, but she expected him back every minute. On my inquiry where I might wait for him, she directed me to a coffee-shop in St. Martin's Court; and I sallied out in search of it, carry-

ing my carpet-bag with me. I had by this time grown heartily tired of my carpet-bag. It was not heavy; but it had become torn during the journey, so that it was awkward to carry, and it exposed me to the attacks of all the boys about the streets, who continually offered to carry it for me. After some trouble, I found St. Martin's Court and the coffee-house, where I dined on a cup of coffee and some dry toast.

When I called on Mr. Pebble next morning, he said that lodgings, such as I wished, might be found in one of the smaller streets between Oxford Street and Tottenham Court Road, and he accordingly accompanied me to that quarter of the town. There were many bills in the windows, but we had to see a great many rooms before we found one which would suit me. I knew lodgings in London were not cheap; but I had no idea that such exorbitant prices could be asked for rooms like those which I saw. We found at last two rooms on the top of a house in Percy Street, at a comparatively moderate rent; and Mr. Pebble urged me to take them. I did so, with a heavy heart, for all the money in my pocket would scarcely suffice to pay the first week's rent. I said I would come to the house that very afternoon, and was about to go for my carpet-bag, when Mr. Pebble told me that it would look very bad if I carried my luggage myself. He said I must send a porter with it; it would only be a shilling—only a shilling! He looked like a man who would run away from me, or knock me down if he had really known of how much importance a shilling was to me.

An hour after sunset I went to Percy Street, and went up the dark stairs to my rooms. The bedroom, which I first entered, struck me as cold and damp, but in the grate of the sitting-room burned a cheerful fire, which lighted the whole apartment. It

may appear strange that in my straitened circumstances I should have indulged myself with *two* rooms. I can only say that these two rooms together were smaller and cheaper than any one room which I had seen. The bedroom, which communicated with the landing on the top of the stairs, was just large enough to hold a bed and a small wash hand stand. The sitting-room was of the size of a moderate dining-table. There was a view from the window of a block-tin manufactory, where a bell was rung at the end of every hour. There was an incessant noise of the steam-engine and the hammers. When Londoners advertise rooms of this kind, they put in an assurance that "the situation is cheerful."

I was visited, on my arrival, by a little servant, who looked as if she had been made on purpose to fit the room, she was so small and thin. She brought a candle, and looked at me with almost as much interest as I did at her. She said, "Miss Brown had told her to ask whether I wanted any thing for supper." I was about to say, no; but I recollected Mr. Pebble's advice about appearances, and told her I would go out for my tea.

I went out and took a walk up Oxford Street, partly with the intention of buying writing materials—partly in order to accustom myself to the London streets. London street life has an astonishing influence on the minds of new-comers. The strong glare of light in the principal thoroughfares, and the comparative darkness in the streets where there are no shops, joined to the incessant rattling of wheels, and the crowds of people going and coming give a foreigner a dizziness in the head. I had seen, in Wellclose Square, how violently London operated on the lower classes of my countrymen; they seemed almost as drunk with the town as with the liquor they had taken. On me it acted in a different manner. I saw everything confusedly, and my ears

were almost stunned with the noise. I walked as in a dream. I was curious to see, and yet I could not mark anything. I must have passed half-a-dozen stationers' shops; yet I had almost reached the end of Oxford Street before I found one. When I entered it, I talked confusedly, and my manner was so trembling, that the shop-people stared at me with surprise. I had great difficulty in finding my way back, and was extremely fatigued when I lay down on the little flock bed. That night I had no dreams.

The first week which I passed in my lodging, in Percy Street, was a sorry one. On the first morning I was embarrassed by Miss Brown, the landlady, coming up and asking whether I wished my room "done" at once, or whether she should wait till I had gone out to my business? I stared at the word *business*, for it reminded me that I had none. It is true there was a hope that I should soon be employed; but there was something in that very hope which sickened me. I had duly informed Mr. Vitriol of my exact address, and written my name in large letters for the information of the little Hackney servant; for I was very nervous about my letter being lost. The postman's knock made my heart beat; and I was once almost choked with emotion, when, immediately after that knock, the girl came up-stairs. I listened with trembling eagerness to the sound of her steps. There was no letter for me. Since there was none, the idea of that letter had become fixed in my mind. I thought of it during the day—I dreamed of it in the night. In the meanwhile I spent my time equally between writing and walking. Economy was my grand object; but ignorance of the town made saving difficult. My proceedings in the first days struck me sometimes as being penny wise and shilling foolish;

but at last I hit upon a plan of spending sixpence a-day for my eating. Sausage rolls are very fat, and, consequently, satisfying. I bought one for my breakfast, one for dinner, and a third, which I ate at night, to make me go to sleep. I never bought all three at a time, but went out for each, in order to have something to do. Now and then, being madly fond of smoking, I stinted myself of one roll, and bought a cigar instead. Still following Mr. Pebble's advice about appearances, I usually took my walks between three and six in the afternoon, to impress the people in the house with the idea I had gone out to dinner. Nevertheless, I saw my few shillings fast vanishing; and one anxious day passed after another without a letter from Mr. Vitriol. I had meanwhile written an essay about the state of Prussia, which I took to Mr. Pebble, and asked him to procure its insertion in some journal. He put it by, saying he was very busy just then, but hoped, in a fortnight or three weeks' time he should find leisure to look it over, which he must do before he could recommend it. I ventured to hint that its immediate disposal was of great importance to me, and that the looking over it would scarcely take him half an hour. He contemplated me with great astonishment, and grew very restless and pettish in his manner. In going away, I thought of the German nursery tale of people who sowed the wheat when the child was hungry, and, by the time the harvest came, the child was dead. The next day I received a letter from Mr. Vitriol. I could hardly read it for trembling. There were no letters of recommendation in it. I was merely informed that Mr. Vitriol had put off writing because he had returned to town, and that he wished me to call upon him the next morning. There was some hope in being appointed to meet him. The night passed away in feverish impatience.

I punctually attended the appointment. Alas! my interview with Mr. Vitriol showed me only that I had nothing to hope from him. His first question was, whether I had found out and obtained pecuniary assistance from any of my countrymen? At first I did not exactly understand the meaning of his words; but when I did, I felt greatly insulted, and told him I wanted no assistance, except literary employment, which none of my countrymen in London could give me. "The only alms I want are the wages of labour." He shrugged his shoulders, and said he would talk to some publishers. I might do translations. But he would not hear of giving me letters to those publishers. A personal interview with him was better; I should hear from him.

To say that I left Mr. Vitriol in despair, would be a wrong description of my state of mind. The sickening hopes which hitherto confined my energies, had proved fallacious. I had done with them. Still I was resolved not to despair of anything, and to hope everything. After returning from Mr. Vitriol's house, I formed my plans. I would offer my services to all London papers and periodicals; I would try to live upon next to nothing, and wait the result. My state of mind was very strange; it was less depressed and anxious than it had been during the previous week. There were even times when I could smile and find an interest in the deep importance which pence and farthings had acquired in my eyes. I could reconcile myself to the present, but dared not think of the future.

Meanwhile, I studied the names of journals in the newsvenders' shops, and wrote to the editors, stating my case and asking for employment. The delivery of the letters at the offices was very instructive to me; it made me acquainted with the principal streets of the town. I delighted in carrying my own

letters; it gave my excursions some purpose, beyond the mere walking. I wrote and carried some letters each day, but I received no answer whatever. I had, meanwhile, reformed my way of living, by discovering a shop in High Holborn, where little hot things which they called meat-pies, might be had for a penny. They were very indigestible, and, I doubt not, unwholesome; but they did for me, because anything indigestible was just what I wanted. Good digestion was precisely the thing to be avoided. As the days and weeks wore on, I felt time more and more heavy on my hands. I had now nobody to speak to; for, the last time I had called on Mr. Pebble he looked so alarmed, that I could not repeat my visit. I had no books to read; there was absolutely nothing I could do, except writing. But then I had great reason to be careful with my paper. I amused myself now and then by crossing the leaves of an old copy-book with short notes of my feelings and impressions. My little servant had grown sulky. It seemed as if the days would not end, and the nights were very long. I could not go to the expense of having a fire, and remained in bed the greater part of the day, to keep myself warm. Christmas Day passed away almost unheeded. I had no almanack, and would have remained unconscious of the beginning of the new year, but for my little servant, who said she was going to spend New Year's Day with her friends at Hackney.

January set in with severe weather, and I fell ill. I felt glad of it; for a total loss of appetite was one of the first symptoms of my illness. My appetite had, of late, been very troublesome. I was never blessed with so large a capacity for eating as when I least had the means of doing it justice. When the fever left me, in its stead came all the pangs of a morbid hunger.

The unfortunate gentleman, during the first walk after his recovery, calls on a German bookseller, from whom he obtains leave to sit in the shop sometimes and read gratuitously. The bookseller invites him to tea one evening; he stays late; and, on returning to his lodgings, he finds himself accidentally shut out. "There was no choice left," he says, "but to keep out the cold by walking about the streets; for to go to any hotel or public-house was quite out of the question." So, wandering about the lonely streets upon a rainy January night, he was for a time lost in London.

The bookseller and his connections were eventually useful. The writer's acquirements were made known, and procured him employment. He is now connected with the Foreign department of an eminent journal, and prospers.

South American Scraps.

THE PAMPAS INDIANS.

THE Pampas Indians, like the more civilized *guachos* or descendants of the old Spanish colonists, live on horseback. Their domestic arrangements are of the simplest kind. A moveable tent, made of horse-hide, is the only mansion they covet; horse-flesh and maize are their food; a *poncho*, or short cloak, and a pair of boots, made of colt-skin, their only clothing. They herd together in separate tribes; each community being governed by a *cacique*, or chief. Their wants are few; but even these are often not well supplied, in spite of the natural fertility of their country. Sir Francis Head, in his "Scamper across the Pampas," divides these regions into three sections. "On leaving Buenos Ayres," he says, "the first is covered, for one hundred and eighty miles, with clover and thistles alternately; the second, which extends for four hundred and fifty miles, produces long grass; and the third, which reaches to the base of the Cordilleras, is a grove of low trees and shrubs. The whole country is in such beautiful order, that if cities and millions of inhabitants could suddenly be planted at proper intervals and situations, the people would have nothing to do but drive out their cattle to graze, and without any previous peparation, to plough, whatever ground their wants may require." This is, to a great extent, true; yet so straitened are the natives for food occasionally, that necessity has sharpened their wit to a high degree of cunning. Travellers inexperienced in the subtle tricks of the Pampas Indians, have but poor defences against them.

while roving in pursuit of their little equestrian diversions either for frolic or plunder. To understand some of the strategies which I am about to disclose, it is necessary to bear in mind that in South America all journeys, whether long or short, are made on horseback, and that a traveller is always accompanied by two or three attendants, likewise mounted, leading and tending additional horses caparisoned for use. These are usually driven a-head, and gallop together at a quick speed, followed by the whole party, the attendants from time to time riding forward to survey and regulate the course of the horses in advance.

This is the basis of one of their most successful stratagems, which is remarkable, as exhibiting their ability in horsemanship, and, moreover, the absence of any other purpose than that of obtaining some petty spoil. It being a common thing to see five or six persons galloping through the country, and driving a large number of horses before them; you, who are probably travelling in the same manner, take no special notice of the party advancing towards you from the distance. They approach nearer; you neither slacken your pace, nor diverge from your proper course. Why should you? There is no perceptible reason; yet you are, or may soon, be in a snare. Look well at the advancing party! Now they are near enough for a more critical survey—what do you make of them? There are in advance about thirty horses, driven forward by a party of six persons, all on horseback—they appear to be Indians; but what if they are? How can they harm us? Well, you continue to ride on unsuspectingly. Now you are within musket shot—look intently and scrutinisingly—do you see nothing more? No, nothing! Look again. Ha! it is now too late. On the backs of the thirty horses spring thirty devils, created seemingly by some sorcerer's blackest art. Each bears in

his hand a lance, whose cast is certain death. In the first stare of amazement, before you can arrange a thought out of your bewilderment, they are on you and around you; you are dragged from your horses; and what follows depends mainly on your own behaviour. It is probable they will deprive you of your horses—perhaps your clothes too. What of that? You escape with your life, and without personal outrage. Go home as fast as you can, and be satisfied with so gentle a misfortune.

Now whence did these thirty "monsters" spring from so suddenly? How came they there? Their unearthly wildness seemed to subdue even the wild horses. Nothing is plainer than a deception explained. You cannot seriously think those tawny monsters knew anything more of magic or sorcery than its primary and potential element, deception. Their cunning is of nature, not art. They do not pretend to do enormities. Their simple object to obtain effectually and as quietly as possible, seems to be all they wish, and all they really do. The truth is, that they did not spring out of the ground merely to entrap you. They came as gentlemen, wild or tame, should approach, on horseback—all the way on those very horses, which they rode in a fashion of their own—not suitably, by any means, to the tame equestrians of London or Paris. A very quick eye might have discerned, while the advancing horses were galloping along in apparent freedom, something hanging under the belly of each horse; it is the dark body of the crafty Indian, holding, with one hand to the mane of his horse, and to the spine with one of his feet; in the other hand he carries his lance, so low to the ground and carefully poised, as neither to injure nor obstruct the motions of the horse. The drivers vigilantly keep the horses together, with that side of each which is free from the

leg of the suspended Indian presented to the traveller favoured with their interest.

I am not certain that these special customs of theirs are not practised by them rather as sporting diversions than in malice of hostility, or with the motive of plunder. Perhaps they regard their pursuit in adopting the stratagem as a kind of chase after a human animal quite as cunning as themselves. Two circumstances seem to point to this conclusion:—the one, that they do no personal injury, and only take what, even to them, must be almost valueless: and the other, that, in consequence of the disappearance of all kinds of animals from their usual hunting-grounds, they are obliged to seek their sport within the "inhabited" or settled portions of the Pampas. It is said that they have destroyed all the animals of their own districts, by accumulating and driving in, from far off, all they could see into a corner between the sea-coast and a river that discharges itself at that point. This appears to me to be rather improbable: certainly less probable than the supposition that many of the herds thus perpetually hunted, have, from time to time, escaped from those districts, and come into the safer retreats of the "inhabited" parts.

Even the wildest of the wild among the Pampas Indians appear to be polite. They come into the "inhabited" parts for the purpose of hunting, but they invariably ask permission of the *Estancieros*. But what cares the *Estanciero* for their politeness? He sorely feels himself on the horns of a dilemma. If he consent, he is certain they will destroy some of his herds of tame cattle—he supposes they will steal a few horses. If he refuse, he is equally certain they will chase and hunt as much as they please in the remotest part of his "property," and drive away as many

horses as possible; and, worse than all, in the case of refusal, it is probable they will set fire to the grass.

Notwithstanding the many circumstances that may be fairly urged in extenuation of the conduct of the worst of them, those called indiscriminately *los Indios ennemigos*, who, however, do not appear to be in reality more hostile, or rather less friendly, than those located within the *capamentos*, it is obvious that they are rather troublesome neighbours and frequently very annoying to those who, by favour of the governmental power, have usurped the territories which were the only birthright of the Pampas Indians. The common complaint is, that they are dangerous to the ever-advancing settlers. Is it not so everywhere? Neither settlers nor governments remember that the danger proceeds from themselves, and is the natural consequence of their ever-advancing settlements claiming the dispossession of the persecuted.

It is commonly reported throughout those regions that the Government have resolved to exterminate them at the first opportunity; and this in violation of their treaties. It seems the Pampas Indians, wretches whose wild existence might exclude them from the pale of politics, are dreaded as an irregular political power by the powerful Government, because revolutions are frequent in South America; and it is alleged that, at such periods, the Pampas Indians aid them, indirectly, by pillaging and murdering where they can. If the declared pretext be founded on ascertained facts, which I think is by no means evident, may not such conduct be the result, in some degree, of the boasted intention of the Government to exterminate them at the first opportunity? It is probable that most of the Pampas Indians are acquainted with the intention thus indiscreetly divulged. And, if so, what

other conduct can reasonably be expected? After the revolutions that occurred in the south of the province of Buenos Ayres about the end of 1839, during which it was alleged the Indians committed devastations most extensively, the celebrated Governor Rosas gave orders to the Colonel-Commandant of the town of Tandil, then the frontier town, to the effect that, after the country should have resumed a little more of its natural aspect, and all parties should have become lulled into comparative security, he was to wreak a signal "vengeance" as it was called, on the Indians. Let us see how well and faithfully the gallant Colonel executed the noble purposes of the famous Governor Rosas.

The chief *toldeira*, or dwelling-huts of the Indians, at that time, was situate about twenty miles south of Tandil, on the margin of a small river, on the farther side of a chain of mountains. Not less than three thousand native men, women, and children, dwelt there. The colonel vigilantly watched for an opportunity, and the garrison was always in readiness. But the Indians appeared to be equally vigilant. At every evening inspection of the corps of cavalry at Tandil, about nine hundred men, heavily armed, emissaries of the Indians, attended, charged with the duty of watching every movement of the soldiers, until the horses were led away for the night. Never was duty more strictly discharged.

The old colonel could not longer remain inactive, and resolved to attempt a night surprise. He knew of the presence of emissaries at every inspection, and observed the confidence with which they usually departed after the release of the horses. On the 13th of March, 1840, the inspection passed off as usual; the emissaries attended; the horses were released; and the Indians departed. Arrived at the *toldeira*, their report was satisfactory.

In the full confidence of security, all reposed. Meanwhile the colonel ordered his horses saddled, and mounted. Dividing his corps into three columns, they commenced their fatiguing and dangerous march at night through the Pampas, towards the *toldeira* of the Indians, which the three columns of cavalry reached at day-break. No sentry or outpost was there to alarm the encampment. All within lay in the deepest repose.

The issue, in all its revolting horrors, may be anticipated. The natural cruelty of the old Spanish blood was exhibited in the thousand frightful and revolting barbarities then committed by the Argentine soldiers. Only a few of the Indians succeeded in escaping amidst the universal confusion. These speedily informed their countrymen of the horrible fate of their tribe. They have never forgotten that dreadful day. To perpetuate the memory of that massacre, and to mark its scene of horror indelibly for all time, the very place, as well as the small river there flowing on so peacefully and bloodlessly, is called "*Los Vuesos*," signifying the bones.

In the course of my residence at Azul, I cultivated the acquaintance of one of the Caziques of the Capamento, with the view of gathering information as to the religion and peculiar customs of the Pampas Indians. But I never could obtain any regarding the nature and the conditions or laws of their religion. The first caution I received in Azul, was while walking in the sandy streets which are always crowded with them, that I must avoid passing between two of them while in mutual converse, as such an interruption is, they consider, a flagrant insult, and becomes usually the precursor of the most disagreeable consequences. Of course I did not fail to note the caution; and I had neither the courage, nor the disposition of curiosity or mischief, to try the experiment.

I cannot say the Pampas Indians are free from the vice of drunkenness. It seems that, like other wild tribes of Indians, these have, in their contact with more civilized settlers, contracted the habit of occasionally indulging to excess in spirituous liquors. In almost all cases it will be found to be an imported vice, the result of an imported temptation, too agreeable to the cravings of that sense from which man in his rude state derives one of his principal gratifications. However, there is a striking peculiarity in their mode of drunkenness which deserves to be noted. Everybody has heard there is a method in madness. I never heard of any method in drunkenness; but I have witnessed it plainly developed among these Pampas Indians. In Azul are numerous *pulperias*, or brandy-shops. Being there, it is not likely the Pampas Indians will pass them without tasting the liquor so much esteemed by the Argentine soldiers. If it were intended to make drunkards of all the Indians in the Capamentos, no surer method could be adopted than opening so great a number of such shops there. Whenever the Indians have either money or valuable property of any description, to these shops they hasten, usually in parties of a considerable number. Of course the intoxicating beverage is supplied to the extent of their means of payment; and to many, credit is given. Amongst every such party of drinkers, there is always one who refuses to drink; he will not taste a drop. Nothing will tempt him. The offer of whatever may be at any other time operative to seduce a Pampas Indian to perform an act of any kind, is now quite unavailing. His mission is to watch over and protect his drinking companions. More vigilant than a sentinel at an outpost, facing an enemy under arms, does he perform his solitary duty. He acts as paymaster or banker for all his party. He appears to have been invested by each of them

with supreme authority for the time being. But what is the use of authority over a party of drunkards? How can it be exercised beneficially while they remain in drunkenness? Let us see. Observe him closely. He looks around, and sees his companions in a state of apparent helplessness, or some, perhaps, in excessive excitement. At any time, without consulting any of them, he pays the reckoning for all, and with a single word his authority is acknowledged by every individual of the party. All disputes cease without another word. He leads them out of the *pulperia*, and even the most drunken fellow of the party follows alertly. Nor is this all: every man mounts his horse, and all return together to their *toldeira*.

Once, while in the neighbourhood of Patagones, our party was encamped on the border of the Colorado. One morning, very early, myself and the six companions who slept with me in our tent, were disturbed by the suffocating sensation caused by thick gusts of smoke blown down upon us by a hot north wind. The smoke had affected my eyes, and I therefore rose, early as it was, to enjoy the freshness of the air. I was proceeding, slowly strolling towards the river, when an unusual noise proceeding from the other side of the river attracted my attention. The atmosphere being dark and misty, I could not see anything to account for the noise, as our *caravane* lay before my eyes, and I had ascertained that nobody was missing. I remained watchful, until the morning mist began to clear away, when I was astonished in recognising immediately the unmistakeable features of a party of Pampas Indians, who were approaching our *caravane* in their usual silent fashion. In a moment I alarmed my companions. As our party was numerous, and we had an abundance of fire-arms, although alarmed, we felt satisfied that nothing extremely

serious was likely to happen to us. But we knew that with such neighbours of the Pampas no precaution can be considered as superfluous. We held a brief council, which resulted in the mission of the young *Estanciero* (who perfectly well understood the language of the Pampas Indians, and personally knew many of their tribes) to the advancing party in order to ascertain their intentions. While he advanced, we prepared everything for an efficient defence; but happily none was necessary. After the interchange of a few words, the young *Estanciero* discovered that instead of any meditated hostility, it was, in fact, a party attending in honour to visit himself—a truly agreeable surprise to all of us.

It turned out that an old Cazique, who was a very old friend of the young *Estanciero*, having heard of his presence in our *caravane*, could not abstain from indulging himself with a visit. On hearing this, of course the least we could do was to turn ourselves up all hands in the endeavour to entertain our guests, who, counting women and children, amounted to nearly a hundred persons. As those Indians eat nothing but horseflesh, all we could do was to provide the wherewithal for their repast. We could give them horses or mares, but they must kill them, and cook them, and eat them without our assistance.

Some mares were brought from the nearest *manada*, or troop of wild horses, after about half an hour's sharp chase. They were presented in due form, and in due form they were received. Some were killed, cooked, and eaten, also in due form, I suppose: but, certainly, with very little of what we call ceremony. When I mention that the blood of the animal is esteemed the chief delicacy, the reader will not require me to describe the repast in detail.

AN ADVENTURE WITH A LIZARD.

The immense plains of grass and other vegetation, which are interspersed with lakes, and of which La Plata is chiefly composed, give life to innumerable animals of the lizard tribe.

The Lagarto, or lizard, is at home in all parts of the Sierra de St. Catherina, and is of various sizes, from the little animal of scarcely four inches in length, to the magnitude of six feet in length. Its colours are most beautiful and diversified. In the hot summer days they appear to like to congregate and bask upon the mountains, where the reflection of the rays of the sun upon their brilliant-colored and translucent skins impart a striking effect. I have often, upon approaching a mountain where they disported themselves in the sunshine, making it almost vivid with their brilliancy, seen them, in their fright at my approach, suddenly and rapidly rush away from all sides of it, producing the same visual sensation and effect as a flash of lightning unexpectedly passing over the shining surface of large sheets of downward-rolling waters. It is very difficult to catch them, on account of the rapidity of their movements. I remember a circumstance happening to myself, while in the Sierra, which will exemplify one of the few ways to kill a lagarto.

On a very hot summer afternoon, I was returning from a visit I had paid to a neighbour, and passing near a solitary *puesto* (the house for a *capatan*, a steward or overseer of a certain part of the lands belonging to an Estancia), I resolved to dismount from my horse, in order to refresh myself at the *puesto* with a draught of water. Finding that the inhabitants had not returned from their occupations in the fields, I entered the little kitchen, and much fatigued, with my eyes full of dust. At the opposite end was a very small door, through which alone any light penetrated

the kitchen. At the time I entered, the sun shone vividly through the door, giving a lively appearance to what otherwise would be in fact a little black hole. My entry was not attended with any noise, for I wore *potro*-boots—the entire boot being made of leather manufactured from the soft skin of the hind-legs of a *potro*, or young horse,—a lucky circumstance for myself; for on looking around for the never-missing *jarro*, or water-pot, I perceived—what I may truly say quite amazed me—an enormous lizard, of the largest class, close to my feet! Undisturbed by my entry, there it lay, sleeping quietly before the scarce-extinguished fire, enjoying, doubtless, in its repose, the warmth of the rays of the sun falling upon him, so as to show the beauty and brilliancy of his colours in dazzling reflection. A moment's consideration determined me how to act. I quietly withdrew to the yard, armed myself with a sturdy stick, which is the only weapon fit for attacking a lizard, and re-entered the kitchen, and quietly and carefully took up my position behind the lizard, leaving the door wide open. My reason for taking a position in its rear was, because I had been told by Guachos that the bite of a lizard is really dangerous, and that it will never relinquish whatever it may get hold of with its teeth. I did not forget, however, that there was also considerable danger in the rear, on account of its capability of severe mischief with its tail, which is formidably armed with very hard-pointed thorns. Having taken these precautions, I struck a tremendous blow at the animal's head. It was, indeed, fortunate for me that I stood in its rear; for as soon as the blow was struck, before I could raise the stick to strike again, the lizard made such a leap as seemed impossible, several times while in the air opening and shutting its mouth most frightfully. On descending, it dealt the most furious

blows on the ground with its formidable tail. It then departed slowly from the kitchen. After repeated blows of equal severity, I at length killed him, without having received any injury. I soon stripped off his skin, which was one of the finest I ever saw.

I should state that the skins of these lizards, especially those of the large class, are very much esteemed, and are used, as a curiosity, in covering sundry ornamental articles of household furniture. The difficulty of catching the lizards doubtless enhances the value of their skins, which are in themselves sufficiently beautiful to be esteemed as curiosities.

THE SIERRA DE ST. CATHERINA.

To the stranger visiting the district of La Plata, known as the Sierra de St. Catherina, for the first time, the whole range of country presents the most surprising aspect. Pursuing the course of the numerous small rivers along the valleys, the landscape appears literally black with the inconceivable multitudes of cattle covering it as far as the eye can reach. No European can form any adequate idea of the appearance in such a scene of such vast bodies of cattle—all in their wild and natural condition. Not a tree to be seen, except the few planted near a solitary *rancho*, or house, the lofty, multiform, black, and weather-beaten cliffs of the Sierra extending far, as the back-ground, and the entire intermediate space of hills and valleys innumerable, covered most densely with the wild cattle, whose multitudinous groups appear to be only divided by the numerous rivers intersecting the district, and throwing a living brightness through it:—this is a picture which powerfully struck my mind with an ineffaceable impression of another phase, differing from the many I had received in the course of my previous travels, of Nature's wildest grandeur.

Generally there is scarcely any perceptible movement in those multitudes of cattle: densely thronged together, the motions of individual animals are not discernible at any distance. Occasionally, and frequently, this aspect of the scene is changed, and the picture becomes suddenly animated in a manner most striking. A troop of a thousand or two of wild horses rush on to the scene in their wildest speed, with their long tails streaming in the air, and their shaggy manes all dishevelled; snorting and neighing, they pass like a living shade over the top of a hill, and as suddenly disappear in the valley beyond, rising and disappearing again and again, disturbing, in their reckless course, and breaking the groups of cattle, previously so quiet and seemingly motionless.

In the Pampas, where also cattle abound, vast numbers are lost in the very dry summers, it is supposed for want of moister pasturage; but in the valleys of the Sierra that calamity is prevented by the numerous rivers there flowing,—a circumstance which I suppose may, in some measure, account for the multitudinous congregation of cattle there.

Another curiosity of the Sierra is the peculiar kind of wood it produces, which is not to be found in any other district. This is the wood of the curumamuel tree, which grows in extensive forests, and covers the Sierra in many parts, over many miles together. The leaf of these trees ends in a hard spiked thorn, which, combined with their density and close proximity in the forest, form, in fact, a thicket which it is quite impossible for any human being to pass through, or even enter. Nevertheless, it is throughout the summer, and especially at the commencement of winter, the resort and abode of numberless horned cattle, as well as lions, and other beasts. The stature of these trees is never higher than about five feet.

It is the custom at the commencement of every winter to set fire to these forests, for the twofold purpose of driving out the numerous horned cattle, lions, and other beasts taking refuge there, and of getting wood entirely dry, in anticipation of the rainy season; and, as a provision necessary to protect the wood from the influences of water, it being certain that, after the trunks of these trees have become charred and blackened by fire, water has no longer any influence upon them.

Such conflagrations often continue for several weeks, and form a most magnificent spectacle. Imagine to yourselves one of those transcendently beautiful nights, known only in southern climates, when myriads of intensely shining stars illuminate the bright and clearly blue firmament, covering, with the sanctity of stillness, the repose of earth with all its living terrors, and all its hushed joys and sorrows, its natural glories, and its unnatural ambitions; imagine yourselves at such an hour upon the wild Sierra, thinking only of the beautiful and the sublime in harmony with the scene, or perchance of the quietude of a home far away, with its tranquil household delights—when, suddenly, as though the flame had been caught from a passing flash of lightning, you behold the leaves and the branches of many and far-extending forests gradually consuming, and the surrounding grass throwing upward myriads of sparks above the flaming masses; imagine that you behold the increasing flames, compact as one living principle of the element itself, marching and luridly dilating through the forests, and along the valleys, and over the hills and cliffs, and through the defiles, arousing the wild beasts, whose agonized roaring awakes the startled mountains themselves, with aspects wearing the burning hue of all around; —and you have pictured for yourselves, as well as I who have

beheld it, the magnificent spectacle of one of those conflagrations.

The cliffs, which form three sides of the basin near the *Loma de Ulallatue*, are overgrown with various kinds of grass and wild flowers of luxuriant growth. It is considered rather a singular fact, that thousands of *loros*, or small parrots, take refuge and abide among those cliffs, and make their nests there in holes. The inaccessibility of the situation alone prevents their entire destruction; for no good-will appears to be entertained to them, on account of the ruin they effect in every plantation. Towards the sea, the Sierra gradually becomes less elevated, and terminates at a distance of between two and three leagues from the sea.

But the mountainous character of the district of the Sierra does not terminate at that point; for on the beach the Downs appear more like mountains than anything else. They, like those of the Sierra, present the most striking and uncommon forms. I visited them in the company of a friend who had been shipwrecked in this very spot in a voyage from the United States to Valparaiso, when he was the only person saved, and who, from his long residence in the provinces of South America, is regarded there rather as a native than as a foreigner. Traversing on horseback through deep sand, we slowly reached the Downs. They are nearly half-an-hour's ride in breadth, and are covered on the land side with various kinds of grass and reeds, which gradually increase in density until the ground disappears. Between the many hills and mountains that form the Downs are very deep holes, filled with a perceptibly thick water, which is perfectly fresh and sweet, notwithstanding its thickness, and, doubtless, the produce of springs sufficiently powerful to throw off all extraneous superincumbent waters.

My friend there narrated to me the circumstance of his shipwreck on the scene before me, so vividly that I could not throw off its saddening impressions, while galloping with him along the beach, with the Downs, we had now viewed together, on our left, and on our right, the endless ocean. I could not avoid thinking, that even thither the Pampas bore the breath of winds more fatal than a pestilence towards those whose best earthly hope lay in the anchors, which avail nothing on such a coast. The shipwrecks are frequent there; and even at this time are often found the battered waifs and strays that come in as continual mementos of the fate of the large English vessel, the "William the Third," which perished there, with all hands, about the year 1833. There rose blackly and frowningly before me the lurking terrors of those perilous rocks, that run for miles into the sea, and are so large that, at low tide, their form and development are scarcely concealed. No living creature can be seen upon those vast downs, save occasionally, and rarely, some curious traveller; not even a single bird lends to the scene a living breath; not an echo sports in its air of perfect stillness; save when the Pampas winds come there to war with the vexed waters of the overpowering ocean. Lingering on the scene, notwithstanding these impressions, we saw the majestic Atlantic in its happier mood of peacefulness, reposing calmly and serenely on its awful might; and in viewing its dark blue waters (how "darkly, beautifully blue" they are!) commingling in the scarcely perceptible horizon, with all the glories of the skies, the sublimity and wild grandeur of all things above and around imparted to me a moment of feeling, worth a world of travelling to enjoy.

The Jews in China.

THERE is a quaintness in the notion of a Jewish colony surrounded by Chinese; the fixed among the fixed. The fact that such a colony exists, or has existed when found, ought to be especially remarked, for to ethnologists and others it may prove a valuable opportunity for speculation. Jews in China, what will they be like? will the Jew stand out from the surrounding uniformity of Chinese life, like the one tree of the desert (for which, see Panorama of Overland Mail, and hear lecture upon same)? or will he become non-entity, like among like, adding nothing to the first idea—silence in a calm? In the Jewish synagogue of Kai-foung-fou, concerning which we have presently to speak, there are Chinese inscriptions. The first, placed there in 1444, by a literary Jew, is intended to prove the close analogy between Jewish and Chinese points of doctrine. "The author," it says, "of the law of Yse-lo-ye (Israel) is Ha-von-lo-hon (Abraham.) His law was translated by tradition to Nichè (Moses.) He received his book on Mount Sinai. His book has fifty-four sections. The doctrine which is therein contained, is much like that of the Kings," (which are sacred volumes of the Chinese.) The author of the inscription repeats many passages to prove that in their worship to heaven, their ceremonies, their behaviour to the old and young, their patriarchal character, their prayers, and their mode of honouring dead ancestors, the Jews resemble the Chinese.

The author of a second inscription, a grand mandarin in his

own time, speaks to the same purpose. "From the time of Han," says this gentleman, whose name is Too-tang, "from the time of Han, the Jews fixed themselves in China: and in the twentieth year of the cycle 65, (which is, by interpretation, 1163,) they offered to the Emperor Hiao-tsong a tribute of cloth from India. He received them well, and permitted them to live in Kai-foung-fou. They formed then sixty-six families. They built a synagogue where they placed their Kings, or Divine Scriptures." This mandarin concludes with an eulogium of Jewish virtue, after the approved manner of epitaphs.

The Jews emphatically cultivated agriculture, commerce, were faithful in the armies, upright as magistrates, and rigid in observance of their ceremonies. One only wants to wind up with the scrap, "Affliction sore, long time they bore;" but affliction on account of the Chinese, at any rate, they certainly did not bear; they were more than tolerated, they were understood; ceremony-men to ceremony-men were ceremoniously polite to one another. The Jews and Chinese even intermarried; on their first introduction by way of Persia to the Chinese Empire, they had settled here and there in sundry Chinese cities; but by marriage with Chinese disciples of Confucius or Mahomet, the Jewish colonies were melted down into the pure Chinese metal; and when this history begins, nothing is known of any synagogue in China, save the synagogue at Kai-foung-fou, which is a city in the heart of the Flowery Land, the capital of the central province of Honan; and for an account of which we are indebted to Father Ricci, one of the Jesuit Missionaries.

Father Ricci died in the year 1610, at Pekin, which was his station. Father Ricci, at Pekin, first heard of the Jewish synagogue at Kai-foung-fou, and the information startled him exceed-

ingly. The young Jew who enlightened Father Ricci on the subject told him that there were then at Kai-foung-fou barely a dozen Jewish families, and that for five or six hundred years they had preserved in their synagogue a very ancient copy of the Pentateuch. The father produced a Hebrew Bible, and the young man recognised the characters, although he could not read them, for he knew no language but Chinese. Four years after this, Father Ricci (whose business at Pekin would not permit him to go gadding) had an opportunity of sending off to Kai-foung-fou a Chinese Jesuit, with a letter written in Chinese, to the chief of the synagogue. He explained to the rabbi his own reverence for the books of the Old Testament, and informed him of its fulfilled predictions, and the advent of a Messiah. The rabbi shook his head at that, saying, "that so it could not be, because they had yet to expect the Messiah for ten thousand years." The good-natured rabbi nevertheless did homage to Father Ricci's great abilities. He was an old man, and saw none about him fit to guide his people; he therefore besought the learned Jesuit to come to Kai-foung-fou, and undertake the guidance of the synagogue, under one only condition, a true Chinese-Jewish one, that he would pledge himself to abstinence from all forbidden meats. However, that was very much as if Dr. Jones of Bettws-y-Coed should offer his practice to Sir B. Brodie of London. Father Ricci had a large work in hand, and so he stopped at Pekin.

In 1613, Father Aleni (such an uncommonly wise man, that the Chinese called him the Confucius of Europe) was directed to proceed to Kai-foung-fou, and make investigation. Father Aleni, being well up in his Hebrew, was a promising man to send on such an errand, but he found the rabbi dead, and the Jews,

though they let him see the synagogue, would not produce their books. The particulars of nothing having been done on this occasion are to be found related by Father Trigaut, in choice Latin, and choicer Italian, (*de Expedit. Sinicâ, lib.* 1., *cap.* 2, *p.* 118) and by Father Samedo (*Relatione della China, part* 1., *cap.* 30, *p.* 193.)

A residence was established by the Jesuits in Kai-foung-fou. *Now*, thought those who thought at all upon such matters, we shall have something done. If we can only compare our Old Testament texts with an ancient exemplar, that will be no small gain. A certain Father Gozani went zealously into the whole subject, entered the synagogue, copied the inscriptions, and transmitted them to Rome.

The Jews told Father Gozani that in a temple at Pekin was a large volume, wherein were inscribed the sacred books of foreigners resident in China. That volume was sought afterwards by Europeans at Pekin, but not found. Certainly, such a volume does exist among the Chinese records. The Jews, however, told Father Gozani not only about what existed at Pekin, but all about themselves at Kai-foung-fou. The father wrote a letter, dated 1704, containing what he learned in this manner. It appears that by that application of "soft sawder" which is or ought to be well understood by men of the world and Jesuits, the father gratified the Jews, so that they paid him voluntary visits. He returned their visits by a call upon them at their synagogue, where, he says—"I had a long conversation with them; and they showed me their inscriptions: some of which are in Chinese, and others in their own tongue. I saw also their *Kims*, or religious books, and they suffered me to enter even the most secret place of their synagogue, to which they can have no

access themselves. That place is reserved for their *Chan-Kiao;* that is to say, chief of the synagogue, who never approaches it but with the most profound respect.

"There were thirteen tabernacles placed upon tables, each of which was surrounded by small curtains. The sacred *Kim* of Moses (the Pentateuch) was shut up in each of these tabernacles, twelve of which represented the Twelve Tribes of Israel; and the thirteenth, Moses. The books were written on long pieces of parchment, and folded up on rollers. I obtained leave from the chief of the synagogue to draw the curtains of one of these tabernacles, and to unroll one of the books, which appeared to me to be written in a hand exceedingly neat and distinct. One of these books had been luckily saved from the great inundation of the river *Hoang-ho* which overflowed the city Kai-foung-fou, the capital of the province. As the letters of the book have been wetted, and on that account are almost effaced, the Jews have been at great pains to get a dozen copies made, which they carefully preserve in the twelve tabernacles above mentioned.

"There are to be seen also in two other places of the synagogue, coffers in which are shut up with great care several other little books, containing different divisions of the Pentateuch of Moses, which they call *Ta-Kim*, and other parts of their law. They use these books when they pray; they showed me some of them, which appeared to be written in Hebrew. They were partly new, and partly old, and half torn. They, however, bestow as much attention on guarding them as if they were gold or silver.

"In the middle of the synagogue stands a magnificent chair, raised very high, and ornamented with a beautiful embroidered cushion. This is the chair of Moses, in which every Saturday, and days of great solemnity, they place their Pentateuch, and read

some portions of it. There also may be seen a *Van-sui-pai*, or painting, on which is inscribed the Emperor's name; but they have neither statues nor images. This synagogue fronts the west, and when they address their prayers to the Supreme Being, they turn towards that quarter, and adore him under the name of *Tien*, *Cham-Tien*, *Cham-ti*, and *Kao-van-voe-tche*; that is to say, *Creator of all things;* and lastly, of *Van-voe-tchu-tcai*, *Governor of the Universe*. They told me that they had taken these names from the Chinese books, and that they used them to express the Supreme Being and First Cause.

"In going out from the synagogue, I observed a hall, which I had the curiosity to enter, but I found nothing remarkable in it, except a great number of censers. They told me that in this hall they honoured their *Chim-gins*, or the great men of their law. The largest of these censers, which is intended for the Patriarch Abraham, stands in the middle of the hall, after which come those of Isaac, and of Jacob, and his twelve branches, or the Twelve Tribes of Israel: next are those of Moses, Aaron, Joshua, Esdras, and several other illustrious persons, both male and female.

"After quitting this apartment, they conducted us to the Hall of Strangers, in order to give us an entertainment. As the titles of the books of the Old Testament were printed in Hebrew at the end of my Bible, I showed them to the *Cham-Kiao*, or chief of the synagogue; he immediately read them, though they were badly printed, and he told me that they were the names of their *Chin-Kim*, or Pentateuch. I then took my Bible, and the *Cham-Kiao* took his *Beresith* (thus they name the Book of Genesis); we compared the descendants of Adam, until Noah, with the age of each, and we found the most perfect conformity between both. We afterwards ran over the names and chrono-

logy in Genesis, Exodus, Leviticus, Numbers, and Deuteronomy, which compose the Pentateuch, or five books of Moses. The chief of the synagogue told me that they named these five books *Beresith*, *Veetesemoth*, *Vaiiora*, *Vaiedabber*, and *Haddebarim*, and that they divided them into fifty-three volumes; viz., Genesis into twelve, Exodus into eleven, and the three following books into ten volumes each, which they call *Kuen.* Some of these they opened, and presented to me to read; but it was to no purpose, as I was unacquainted with the Hebrew language.

"Having interrogated them respecting the titles of the other books of the Bible, the chief of the synagogue replied, that they were in possession of some of them, but that they wanted a great many, and of others they had no knowledge. Some of his assistants added, that they had lost several books in the inundation of the Hoang-ho, of which I have spoken."

Father Gozani has spoken of the inundation, but we have not, and so we will do so now. Previously, however, we may call attention to the distinct adoption of the Chinese "Hall of Ancestors" among these Jews, and of a place for showing hospitality to strangers as an appendage to their place of worship. It is in this way that, without violating their own opinions, they became assimilated more completely to their neighbours. Father Gozani also notes that their accounts of sacred history were grossly disfigured with Talmudical legends, or other stories of that class—a fact not to be lost sight of by the speculator. The Jews, in the time of Father Gozani, composed seven families—Phao, Kin, Che, Kao, The-Man, Li, Ngai—including in all about one thousand souls. They intermarried with each other, and had their own fashion of hair-cutting. These seven families of Kai-foung-fou were the remains of seventy who had of old established themselves in that

capital. Now for the inundation. That event took place in the year 1642, and it occurred as follows:—Li-cong-tse, a rebel, with a big army, besieged the city. The inhabitants, after defending themselves for six months, still refused to succomb, because they expected rescue from the Emperor. The Emperor did come, a vastly clever fellow, who determined to destroy the enemy by a great master-stroke. "I'll drown every man-Jack!" he said, and broke the dikes that confined the Hoang-ho, or Yellow River, a league distant from the city. Out poured the stream and drowned the besiegers, and besieged the city in its turn, knocked down its walls, and destroyed thirty thousand of its inmates. The Emperor, a cockney sportsman on the largest scale, shot at the pigeon and killed the crow. It was in this inundation that the number of the Jews was thinned; diluted by the waters of the river, their Pentateuch was damaged and some other portions of their scripture altogether lost.

Before passing down from Father Gozani, we must extract his rough picture ot the Jewish synagogue, as it existed in his day. He says of the Jews—

"They have no other synagogue but this, in the capital of the province of Ho-Nan. I perceived in it no altar, nor any other furniture, but the chair of Moses, with a censer, a long table, and large chandeliers, in which were placed candles made of tallow. This synagogue has some resemblance to our European churches; it is divided into three aisles; that in the middle was occupied by the table of incense, the chair of Moses, the painting, and the tabernacles already mentioned, in which are preserved the thirteen copies of the Pentateuch. These tabernacles are constructed in the form of an arch, and the middle aisle is like the choir of the synagogue; the two others are set apart as places of prayer, and

for the adoration of the Supreme Being. Within the building there is a passage which runs quite round.

"As there formerly were, and still are, among them Bachelors and *Kien-sens*, which is a degree different from that of a Bachelor, I took the liberty of asking them if they rendered homage to Confucius: they replied, that they honoured him in the same manner as the rest of the literati, and that they assisted them in solemn ceremonies, which are performed in halls dedicated to their great men. They added, that in spring and autumn they practised certain rites in honour of their ancestors, according to the manner of Chinese, in the hall next to their synagogue: that they did not present them the flesh of hogs, but of other animals; that in other ceremonies they were contented with offering them porcelain dishes filled with dainties and sweetmeats, which they accompanied with perfumes and profound reverences or prostrations. I asked them, likewise, if in their houses or Hall of Ancestors, they had tablets in honour of their departed relations: they replied, that they used neither tablets, images, nor anything else, but only a few censers. We must, however, except their mandarins, for whom alone they place in the Hall of Ancestors a tablet inscribed with their name and rank."

Father Gozani adds, that "these Jews, in their inscriptions, call their law the Law of Israel, *Yselals-Kiao*, which they name also *Kon-Kiao*, Ancient Law; *Tien-Kiao*, Law of God, and *Tien-Kin-Kiao*, to signify that they abstain from blood, and cut the nerves and veins of the animals they kill, in order that the blood may flow more easily from them."

This custom gives to the Jews in China, at the present day, the name of Cut-Nerves. To the present day our story now descends; for, after the time of Father Gozani, blank follows in

the way of action. Father Etienne, who meditated a work upon the Sacred Scriptures in reply to the *Critici Sacri*, was eager to push on investigations. From the letter of Father Gozani, and from those which Father Domingo and Gambil wrote upon it, material was obtained for the memoir published under the direction of M. L. Aimé Martin, in which he remarks that the detail would be regarded with the more curiosity, as it had been often demanded, and as Father du Halde had contented himself with merely promising it in his great work, "Description de la Chine." So we have fairly got out of the past into the present, where our story thus runs on.

In the year 1815, the Chinese Jews endeavoured unsuccessfully to communicate with Europe by means of a Hebrew letter addressed to London, which seems not to have been delivered. Last year the Jewish Society of London determined, however, to communicate with them. Miss Cooks, an energetic and devoted Jewess, placed her purse in the hands of the Society; nothing impeded fresh research; the English Bishop at Hong Kong co-operated, Dr. Medhurst was consulted, and two Chinese Christians were at length appointed to proceed to Kai-foung-fou. The elder of these two was a bachelor; the younger was a student from the Missionaries' College at Batavia; but the junior was named to head the enterprise, because he had previously displayed zeal and ability, and also because he could write English fluently, and would journalise in that language. His journals, therefore, could be laid before Miss Cooks, uninjured by translation.

Our heroes, for so we will call the two adventurers—set out from Shanghae, on the 15th of last November, by boat to Toing-kiang-tou. In a car, drawn by mules, they were then jolted along, following the track of the Hoang-ho, rising at three

o'clock on winter mornings, to save time—a proceeding which involves almost supererogatory self-denial. Population near the Yellow River they found rare and unhealthy. Localities which figure in the geographical charts of the empire as principal places, or as towns of the second class, are but huge piles of rubbish, surrounded by crumbling walls. Here and there a gate, with its inscription half effaced, informs the traveller that he is entering a mighty town.

Perseverance, and a mule car, brought the travellers at last to Kai-foung-fou. They found there many Mahometans, openly exercising right of conscience, and flying their religion on a flag displayed over their gate. These Mahometans are, for the most part, hotel-keepers, and with one of them our heroes lodged. Of him they began asking about Cut-Nerves. Mine host of the Crescent said there were still some Jews in Kai-foung-fou, and offered himself as cicerone to their synagogue. Thither they went; they found its outer walls in ruins; briars and dirt filled the grand entrance; "the pillars of the building, the inscribed marbles, the stone balustrade before the peristyle of the temple, the ornamental sculpture—all were cracked, broken and overturned." Under the wings of the synagogue, the chapels built in honour of the patriarchs—nestled together, cold and naked, sleeping on the bare stones, those objects of our European interest, "the Jews in China." Poor and miserable as they are, they had begun to sell the stones of their temple for bread, and a portion of land within their sacred enclosure had been already sold to an adjacent temple of the Buddhists.

Still there were the cylinders enclosing the sacred rolls of the Old Testament, which, luckily, had not proved eatable. In number these rolls were about a dozen, each thirty feet long by three

feet wide. They are of white sheep-skin, inscribed with very small Hebrew characters.

For fifty years these poor Jews have been without the guidance of a rabbi, and there is not one left who can read a word of Hebrew. In a dozen years, probably, the last trace of the Jews in China will expire. The travellers gave money to the mournful congregation in the synagogue, and received leave to copy the inscriptions, about which the Jesuits had previously informed us. Moreover, they obtained, and have brought home, eight Hebrew manuscripts; six contain portions of the Old Testament; namely, of Exodus, chapters 1—6, and 38—40; of Leviticus, chapters 19, 20; of Numbers, chapters 13, 14, 15; of Deuteronomy, chapters 11—16, and chapter 32; with portions of the Pentateuch, the Psalms, and Prophets. The other two manuscripts are of the Jewish Liturgy. The leaves of these manuscripts "are of a species of card-board, on which the words, as it were, are engraved with a point; the binding is in silk, and bears evident marks of being of foreign origin. Two Israelitish merchants, to whom these books were shown at Shanghae, spoke to having seen similar ones at Aden, and the presence here and there upon the margins of Persian words, interspersed with Hebrew annotations, seemed to indicate that the books came originally from some western country of Asia, perhaps Persia, or some of the high provinces of India, where Persic has from time immemorial been the language used among the people of education. Although the annotations mentioned are numerous, and apparently referring to different epochs, no trace of any Chinese character is to be discovered, nor any of those marks or signs which immediately betray Chinese origin. No date exists by which the age can be determined."

We hope the statement is correct which tells us that these

manuscripts are to be deposited in the British Museum. Facsimiles are at the same time promised, printed in Hebrew, accompanied with a plan of the synagogue, made on the spot by the Chinese travellers, and the journal of our junior hero, written in English and Chinese. The journal in English would not be a very ponderous affair, the entire expedition having occupied only two months; the residence at Kai-foung-fou, five days. We may usefully remember how the good Chinese, rising so fearfully betimes, did justice to the generosity and zeal of their patroness. Are there not men of might at work upon investigations for the public, who, at their ordinary rate, might have come to abandon this business in forty years, after eliminating fifty pounds of blue book?

The Art of Catching Elephants.

THE elephant is associated with our earliest recollections of school-boyhood. Well do I remember the huge black picture of the unwieldy animal in Mavor's Spelling Book, the letter-press describing the creature as "not only the largest but the strongest of all quadrupeds," which is beyond all question; and furthermore, that "in a state of nature, it is neither fierce nor mischievous;" which is the very reverse of fact, as hundreds of sugar and coffee planters, as well as many a traveller, could testify. In later years, I enjoyed a peep at the sleepy-looking creature, cooped up in a sort of magnified horse-stall, at the Zoological Gardens, in the Regent's Park, and well I remember wondering how so much sagacity and thoughtfulness could be attributed to so apathetic and cumbrous an animal.

The reader of Roman and Grecian history may gather how Pyrrhus for a time mastered the hardy veterans of Rome, by means of these then little-known and terrible creatures; and how Alexander found hundreds of them opposed to him in the army of the Indian monarch. Readers of more recent history may learn how these animals formed a portion of the vast armies of most of the Indian Nabobs, with which the British forces came in contact. But twelve short months ago, the elephant graced the civic triumph of the newly-elected Lord Mayor of London, to the unmitigated astonishment and delight of thousands of little boys and elderly females.

Much, however, as I had heard and read of the elephant, I

never properly appreciated this animal, until I had been a dweller in Eastern climes. During a long residence in Ceylon, I was witness of such performances by these huge creatures, that my feeling towards them was raised from that of mere wonder, to something more akin to respect and admiration.

In the course of my early morning rides about the vicinity of Colombo, I frequently reined in my steed to watch the quiet labours of a couple of elephants in the service of the Government. These huge animals were generally employed in the Commissariat timber-yard, or the Civil Engineer's department, either in removing and stowing logs and planks, or in rolling about heavy masses of stone for building purposes. I could not but admire the precision with which they performed their allotted task, unaided, save by their own sagacity. They were one morning hard at work, though slowly, piling up a quantity of heavy pieces of ebony; the lower row of the pile had been already laid down, with mathematical precision, six logs side by side. These they had first rolled in from the adjoining wharf; and, when I rode up, they were engaged in bringing forward the next six for the second row in the pile. It was curious to observe those uncouth animals seize one of the heavy logs at each end; and, by means of their trunks, lift it up on the logs already placed, and then arrange it crosswise upon them with the most perfect skill. I waited whilst they thus placed the third row; feeling a curiosity to know how they would proceed when the timber had to be lifted to greater height. Some of the logs weighed nearly twenty hundred-weight. There was a short pause before the fourth row was touched; but the difficulty was no sooner perceived than it was overcome. The sagacious animals selected two straight pieces of timber, placed one end of each piece on

the ground with the other resting on the top of the pile so as to form a sliding way for the next logs; and, having seen that they were perfectly steady and in a straight line, the four-legged labourers rolled up the slope they had thus formed, the six pieces of ebony, for the fourth layer on the pile. Not the least amusing part of the performance was, the careful survey of the pile made by one of the elephants, after placing each log, to ascertain if it were laid perfectly square with the rest.

The sagacity of these creatures in detecting weakness in the jungle-bridges thrown across some of the streams in Ceylon, is not less remarkable. I have been assured that when carrying a load, they invariably press one of their fore-feet upon the earth-covering of the bridge to try its strength; and, that if it feels too weak to carry them across, they will refuse to proceed until lightened of their load. On one such occasion a driver persisted in compelling his elephant to cross a bridge against the evident wish of the animal; and, as was expected by his comrades, the rotten structure gave way, elephant and rider were precipitated into the river, and the latter was drowned.

Having thus been much prepossessed in favour of these docile creatures, I learnt with considerable interest in the latter part of the year 1849, that an Elephant Kraal was in preparation, in the western Province of Ceylon, not many miles from Colombo.

The word Kraal signifies simply a trap; inasmuch as the wild elephants are caught by partly driving, and partly enticing them within a large enclosed space, or trap. It is assuredly much safer sport than elephant shooting, and generally attracts a large number of spectators. I may here mention that in spite of the scholastic authority of Mavor's Spelling Book, the wild elephants of Ceylon are far from being "neither fierce nor mis-

chievous." At times they descend upon the low country from their mountain fastnesses in such numbers and with such ferocity, as to carry with them destruction, and often death. Elephant kraals are, therefore, resorted to for the double purpose of ridding the neighbourhood of these dangerous visitors, and supplying the Government with fresh beasts of labour for their timber-yards and building establishments. On these occasions the natives of the district turn out *en masse*—from the rich Modelier to the poorest cooly—to assist without remuneration; all being interested in the success of the affair.

The whole province was alive with excitement; nothing was talked of at mess-table, or at Government House, but the approaching Kraal. Half Colombo, it was said, would be there; and, as the weather promised to be so fair, I could not resist the temptation to witness the trapping of a score or two of those unruly monsters of the forest.

Such excursions are always undertaken by parties of three or more, for the sake of comfort. I joined four friends for the occasion; two gentlemen and two ladies, mother and daughter. They were well acquainted with the Government agent of the locality; who had promised them shelter, and good accommodation for witnessing the Kraal. All arrangements having been completed, our servants, gaily turbaned, accompanied by a swarm of coolies, bearing provisions, bedding, and other comforts, started off one fine moonlight night; and at a little before day-break on the following morning, we followed them on the road; the ladies in a small pony-chaise, and myself and friend on our nags. Long before nightfall we reached the village adjoining the scene of sport. We needed no guide to the locality, for the narrow road was crowded with travellers hastening in one direction. Every

description of vehicle lined the way; from the Colonel's light tandem, to the native bullock hackery, with its ungreased squeaking wheels.

The scene at the village was singularly strange and exciting. It was close to the banks of the *Calany*, a river of some size and rapidity. Along the palm-shaded shore were moored numberless boats; many of them large flat country barges, or Padé boats, containing parties of visitors from Colombo; who had prudently determined to take up their abode in those floating residences for the night. The village huts had been thrown open to the English visitors after having been well cleaned and whitewashed. Their doors were gaily ornamented with strips of red and white cloth, flowers, and the fresh pale-green leaves of the cocoa-palm. When the little cottages were lit up for the evening, they looked extremely pretty.

It at was at once evident that there was not nearly sufficient accommodation for all the guests. One of our party started in search of his friend, the Government Agent, but in vain; he had gone off in quest of the elephants, reported to be coming up fast from the neighbouring *Korles* or counties. Consequently we were left to our own resources. After some delay, we succeeded in obtaining the use of one small room for the ladies; whilst, for ourselves, we sought shelter for the night beneath the friendly and capacious roof of one of the Padé boats, where we found a hearty welcome from a party of young rollicking coffee-planters.

Day had not appeared next morning when we were afoot, and, having sipped a cup of vile half-boiled coffee, we started to explore the wonders of the Kraal; followed, of course, by our servants, with sundry tin boxes and a hamper.

The neighbourhood in which the Kraal was formed, consisted

of rugged undulating ground, pretty thickly covered with stout jungle. Heavy, low forest trees studded the stony land, interwoven with thorny brambles, cacti, bamboos, and a species of gigantic creeping plant, called appropriately jungle-rope; for it is strong enough to bind the stoutest buffalo that ever roared. A number of narrow paths had been cut through the jungle leading to the Kraal from the village. Through one of these winding, prickly tracks, we bent our slow way, seeing little around us save hugely-branched trees and thickly-matted underwood. Half an-hour's walk brought us to a halt. We were at the Kraal. I looked around; but, the only indications of the industry of man in that wild spot, were sundry covered platforms, raised amongst the leafy branches of trees, some twelve feet from the ground. These places contained seats, and were already filling with visitors; we followed the example and mounting the rude staircase, obtained a good view of what was going on. Before us lay a large open space, in extent about an acre, irregular in shape and of very uneven surface. A few stout trees were standing at intervals within it; beside which were to be seen groups of natives carrying long white wands, for all the world like so many black stewards of some public dinner or ball. Around this plot of ground grew a wall of dense jungle; and, on looking into this, I perceived that it had been made artificially strong by intertwining amongst it the supple branches of trees, long bamboos, and jungle-rope of enormous thickness. At first sight, this natural wall did not appear to be anything more than ordinary jungle; such as might easily be forced by any ordinary village buffalo. We were, however, assured by the native master of the ceremonies, the head *Corale*, that this jungle wall would resist the fiercest attacks of the strongest Kandian elephant. At one end

of the enclosure I perceived a narrow opening, partly covered with light brambles and branches of trees. This was the entrance to the Kraal; so arranged as to wear a natural appearance. Beside this carefully concealed gateway were hidden a number of active villagers, ready prepared with huge trunks of trees and jungle-rope; with which they were to secure the passage against any attempts at return, so soon as the elephants were trapped.

The novelty of our situation; the wild solitude of jungle around us; the picturesque appearance of the many groups of natives within and about the Kraal; the stories of elephant shooting and trapping, the narrow escapes, with sundry references to portly baskets and boxes of provisions; all helped to make the day pass away rapidly and comfortably enough. Evening, however, brought with it a general debate as to what should be done; for there were still no signs of game being near; and few of us desired to spend the night in that open spot, unless under a strong inducement. The discussion ended by an adjournment to the village and the Padé boat, where we slept soundly.

The following day was spent pretty much as had been the first. Some of the visitors gave strong signs of impatience; and towards evening, a few, of worse temper than the rest, declared the whole affair a complete take in, and took their departure for Colombo. Just then, intelligence was received, by means of scouts, that the elephants, to the number of forty, were in full march towards the Kraal. This set us all on the tip-toe of expectation. Every one betook himself to his appointed place. Ladies shrank away from the front seats, and I detected one or two of my own sex casting anxious glances towards the stairs. An equal bustle was visible within the Kraal. The head *Corale* rushed about full of importance: the black stewards, with their white wands, grouped them-

selves into parties of three or four, at irregular intervals amongst the jungle surrounding the open space, and especially about the entrance; but what duty was to be performed by these gentry, was more than I could divine. It is true (I was told by a native chief) that it would devolve on them to drive back any of the elephants, when caught in the Kraal, in the event of their attempting to force the surrounding defences. But the idea of these poor creatures—some of them mere boys—being of any service, with their little white sticks, appeared so insane and altogether ridiculous, that I felt I was being hoaxed by the *Corale*.

The shades of evening descended, and scouts continued to arrive from the "driving party," with injunctions to hold everything in readiness, for the herd were coming on. The few torches that had been left to dispel the gloom were put out, or removed from sight. The moon had not risen. Every tongue was silent, save a few low whispers at intervals. Eyes were eagerly strained towards the opening through which the herd were expected to rush. Every ear was on the stretch to catch the most remote sounds in that direction. One might have fancied, from the death-like stillness of the place, that we were there awaiting our own fate, instead of the fate of elephants.

We did not wait long in this suspense. A distant shouting burst suddenly upon our startled ears. It drew rapidly nearer, and soon we could distinguish the violent cracking and snapping of branches of trees and low jungle. Then we heard the quick tramp of many ponderous and huge feet. There was no doubt but that the animals were close upon us; for torches were visible in the direction from which they were coming: indeed the distant jungle appeared to be alive with lights. Every native stood to

his arms, such as they were. I could see the white wands glimmering about in the black forest at our feet: some score or two of rifle-barrels, long and ugly-looking instruments, of native make, were protruded from various points. Several of the ladies of our party fainted; and I verily believe that some of the males wished inwardly that they were of the other sex, to have the privilege of fainting and being carried out of reach of danger. But there was small time for attention, even to fainting ladies. Our eyes were fixed upon the moving and rapidly approaching lights. They appeared to burn less brightly as they came nearer: then some disappeared, and soon the whole were extinguished, and all was plunged in darkness. Still, on came the furious monsters; bamboos crashed; the thick jungle flew about in splinters. A heavy tramping, and tearing, and snapping asunder of branches,—and there they were safely within the Kraal. Then arose a shout, as though the clouds and earth were about to meet, or to do something out of the common way. I bent forward to catch a peep at the enemy. The native body-guard waved their white wands. The entrance was barred up in a twinkling, and the torches brought forward to enable us to witness the proceedings, when a volley of loud uproarious laughter fell upon our ears, blended with exclamations of angry disappointment. All eyes were strained towards the clump of trees in the centre of the enclosure, where we beheld a dozen or two of flaming *Chules* or torches, waved to and fro by some score of half-frantic villagers; and there, as the glare of torchlight burst through the dense gloom, we beheld, crouching together, in place of forty huge elephants, a knot of village buffaloes, panting, and trembling, and tossing their heads. A survey of those creatures told us how the matter stood. There had been torches fastened to their horns, and

one or two of them had the remains of *Chules* hanging to their tails. There could not be a shadow of doubt that the affair had been a cruel hoax, and we were not long in ascribing the origin of it to the real perpetrators—the party of young coffee-planters with whom I had slept in the Padé boat.

The laughter of the evening, however, was not yet at an end. The light of innumerable *Chules*, now moving about, discovered to us three nervous gentlemen snugly perched high among the branches of a tree close by our stand. They had made a rush up, in the first alarm of the onset; but, however easy fear had made the ascent, they evidently found it a somewhat difficult task to descend. All eyes were at once fixed upon the unlucky climbers, whose struggles to reach the lower branches were hailed with roars of furious laughter. Elephants, and buffaloes, and hoaxers were for the moment forgotten. One of them was the District Judge, a somewhat cumbrous personage; another, was a Collector of Customs, and the third, a Commissioner of the Court of Requests, a thin wiry fellow with a remarkably red face. There they were, kicking, and straining, and struggling, in as pretty a fix as any of the Civil Service had ever found themselves; and it was not until some bamboos and ropes had been handed up to them, that they were able to reach the stand, and thence wend their way off the scene.

By the time the Kraal was cleared, the night was far advanced, and the moon high in the horizon. Advice then reached us that the elephants had made a détour from the line, and had taken it into their unruly heads to treat themselves to a gambol across some score or two of acres of prairie land; where they were amusing themselves with a good round game, despite the coaxing of a decoy consisting of two tame elephants. It was clear that

nothing would be done on that night, and our merry parties betook themselves back to the village.

Our numbers were evidently on the decline next day. The patience of many had been exhausted. Towards evening intelligence was brought in, that thirty-five elephants, of all sizes, were in full march towards us; and, shortly afterwards, the Government Agent of the district, and the native chief of the *Korle*, came in "from the driving," to see that all was made ready for the proper reception of the jungle visitors. Again all was hurry and bustle. Provision-baskets and nervous ladies were sent to the rear; wine-bottles were placed in reserve, and sundry parting salutes were made with packets of sandwiches. Once more silence reigned over the Kraal: torches were removed: the guards and watchers were doubled, and an extra supply of the little white wands brought to the front.

It was about two hours after dark when we heard the first distinct shouts of the drivers, who were slowly forcing the elephants towards the Kraal; the two tame ones leading the way, and pointing out the advantages of that particular path to their jungle friends. Those sounds seemed to approach us at irregular intervals. Sometimes it appeared as though the animals were not to be moved on any account, and the shouting died away; again they drew rapidly near; then paused; then forward, until we fancied we could distinguish the fall of the elephant's huge feet amongst the thick underwood. At last there was no mistake about it; they were close upon us. Our anxiety and curiosity became intense. The tearing and trampling amongst the jungle was deafening. Giant bamboos and branches of trees appeared to be snapped asunder by the on-coming herd, like so many walking-sticks—in a way, in short, which made me tremble

for the strength of the Kraal, and of our own elevated platform.

But there was little time for reflection of any kind. A shot or two was fired in the rear of the advancing herd, followed by a trampling of the leading elephant. The moon at that moment began to peep over the distant range of low hills; and, by its faint light, I could distinguish the low jungle bending, and giving way on every side, and amongst it sundry huge black forms rushing about in savage disorder, like mountain masses upheaved by some convulsion of nature. The two decoys entered the enclosure at a brisk but steady trot, and stationed themselves under the clump of trees, without any notice being taken of them; indeed, one of them nodded knowingly to the *Corale* near him, as much as to say, "It's all right, old fellow!" On came the wild elephants at a thundering pace, tearing and bending, and smashing everything before them; trumpeting and roaring at full pitch. In another moment they were within the boundaries of our fortress.

Never shall I forget the wild, strange beauty of that uproarious moment. The moon was now shining sufficiently on the Kraal to light up the more open parts of it; away under the deep shade on one side, could be seen a dense moving mass of living creatures; huge, misshapen, and infuriated, trembling with rage, and fatigue. Lighted *chules* were gleaming thickly, like fire-flies, amidst the neighbouring jungle. Felled trees and rope barred up the narrow way, forming one monster gate; whilst busy groups of villagers, white wands in hand, moved to and fro and watched the furious herd. More lights were brought to the front, and a blazing fire was kindled outside the entrance, which, whilst it served to light up the whole of the Kraal, deterred the savage strangers from attempting anything in that direction.

It was soon evident that the prisoners were not going to take matters very quietly. Two of the stoutest of their number slowly advanced and examined the walls, to see where an opening might most easily be forced. And now we were not less astonished than delighted at the use made of those tiny white wands, which had before served only to raise our contempt. Wherever the two elephant spies approached the jungle-walls of their prison, they mere met by one or two villagers, who gently waved before them little snow-white switches; and, lo! as if by some spell of potent forest magic, the beasts turned back, shrinking from contact with the little wands. Point after point was thus tried, but all in vain; the snowy magic sticks were thick within the jungle, and silently beat back the advancing foe.

While the two scouts were thus engaged on their exploring expedition, the tame elephants approached the remainder of the herd, and walked slowly round them, shaking their shaggy ears, and waving high in air their curling trunks, as though they would say, "Move at your peril." One of the captives, a somewhat juvenile and unsophisticated elephant, ventured to move from the side of its maternal parent, to take a survey of our stand, when tame elephant Number One went up to the offender, and sent him back with an enormous flea in his ear; tame elephant Number Two bestowing at the same moment a smart tap on the skull. Busier work was at hand. The scouts, evidently disgusted with the result of their operations upon the outworks, appeared to be preparing for a *sortie*, and treated with the most reckless levity the admonitory taps of the elephant policemen; which, however, seemed to be far less unpleasant to them than a tickle on the snout from one of the pigmy white wands. It was plain that they intended to carry their object by a *coup de* trunk; but a

score of rifles peered forth. The ladies shut their eyes, and stopped their ears; an elderly gentleman, at my elbow, asked, in a tremulous whisper, "what the guns were for?" The inquiry was replied to by a loud trumpeting from one of the pair of rebels,—a harsh screaming roar, like the hollow sound of a strained railway whistle, very much out of repair. We had scarcely time to look at the poor brute creating this disturbance, when we heard the sharp crack of a dozen rifles around us—so sharp, indeed, that our eyes blinked again. Down tumbled one of the monsters, with thick torrents of hot, savage blood, pouring from many a wound about his head and neck. His companion was not so easily disposed of, though badly wounded. Lifting his enormous trunk in the air, and bellowing forth a scream of defiance, he made a rush at the jungle-wall. The two elephantine policemen, who had been narrowly observing his proceedings, then cut in between him and the ramparts, and succeeded in turning him from his purpose; but only to cause him to renew his fierce attack upon another part of the defences. He rushed, at full speed, upon the part where our stand was erected, screaming and tearing up the earth, and lashing his great trunk about him, as a schoolboy would a piece of whipcord. I felt alarmed. It seemed as though our frail tenement must yield at the first touch from the mighty on-coming mass of flesh, bone and muscle. Ladies shrieked and fainted by the dozen: gentlemen scrambled over each other towards the stairs, where a decidedly downward tendency was exhibited. I would have given a trifle, just then, to have taken the seat occupied the day before by the Judge or the Collector, high amongst the branches. But in much less time than I take to relate it, the furious animal, smarting under many bullet wounds, had reached the verge of our stand, heedless

of the cracking of rifles, whose leaden messengers flew round his head and poured down his shoulders, harmless as peas. One last crack, and down the monster fell, close at our feet. That shot was the work of a mere lad, the little son of a Kandian *Corale ;* who, coolly biding his time, had fired his piece close at the creature's ear. Leaping from his place, the urchin flung aside his long tapering rifle, and drawing forth his girdle-knife, severed the elephant's tail from the carcase, as his just trophy.

These two having been disposed of, and a degree of calm restored, the general attention was directed towards the herd, which still remained in their original position. For a time fear seemed to hold them motionless ; but when the extremity of their danger rose before them, a number of the boldest made a desperate rush at the entrance, but were easily turned back, when the watchers stirred up the great guard-fire, whilst, from other parts of the Kraal, they were soon repelled by an application of white wands. In this way a good hour was spent, at the end of which time the creatures appeared to give up the idea of any further aggressive proceedings, and remained subdued and calm.

A dangerous task had still to be performed—that of securing the best of the herd for taming. Half-a-dozen of the most active and skilful of the villagers crept slowly and carefully towards the frightened group ; each having a long stout cord of jungle rope in his hand, with a running noose at one end of it. With stealthy, cat-like steps, these daring fellows went amongst the herd, making some of us tremble for their safety. Each of them selected one of the largest and strongest of the group, behind which they crept ; and, having arranged the "lasso" for action, they applied a finger gently to the right heel of their beast, who feeling the touch as though that of some insect, slowly raised the leg, shook

it, and replaced it on the ground. The men, as the legs were lifted, placed the running nooses beneath them, so that the elephants were quietly trapped, unknown to themselves, and with the utmost ease. The men now stole rapidly away with the ends of the ropes, and immediately made them fast to the ends of the nearest trees. These ropes, however, were far from being sufficiently strong to hold an elephant who might put out his strength. It was therefore necessary to secure them still further, but by gentle means. The two tame elephants were then placed on active service: they were evidently perfectly at home, and required no directions for their work. Walking slowly up to the nearest of the six captured animals, they began to urge him towards the tree to which he was fastened. At first the creature was stubborn; but a few taps on his great skull, and a mighty push on his carcase, sent him a yard or two nearer his destination. As he proceeded, the man in charge of the rope gathered in the slack of it; and so matters went on between this party—a tap, a push, and a pull—until at length three of the elephants were close to the tree. Two other villagers then came forward with a stout iron chain. The tame animals placed themselves one on each side of their prisoner, pressing him between them so tightly as to prevent the possibility of his moving. In a minute or two the great chain was passed several times round the hind legs and the tree; and, in this way the captive was left; helpless and faint with struggling. The other five were similarly treated. After which our party dispersed, pretty well tired, and quite prepared for bed.

Early next morning I paid a last visit to the Kraal, alone; my friends were fairly worn out. The remainder of the elephants had been either shot or had forced their way out in one or two

places. The six captured animals were quiet—as well they might be, after their long fast and incessant struggling. Towards the end of that day, a very small portion of food was supplied to them, just sufficient to keep them alive. In this way they were to remain for a week or two, when, if found sufficiently reduced in strength and temper, they were to be walked about, fastened between two tame companions, who assisted very effectually in their daily education—not, perhaps, in the most gentle and polite manner, but still much to the purpose.

At the end of two or three months, the wild and unruly destroying monster of the jungle might be seen quietly and submissively piling logs of ebony in the Government timber-yards, with a purpose-like intelligence little short of that of man.